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RIAT 2024
RAF Fairford / United Kingdom

AirPower 2024
Zeltweg - Hinterstoisser AB / Austria

F-16 Farewell
Interview with Gen.Lt. André Steur

Airshow London 2024
London Int. Airport / Canada

Stu Goldspink
Plane Talk

Athens Flying Week 2024
Tanagra AB / Greece

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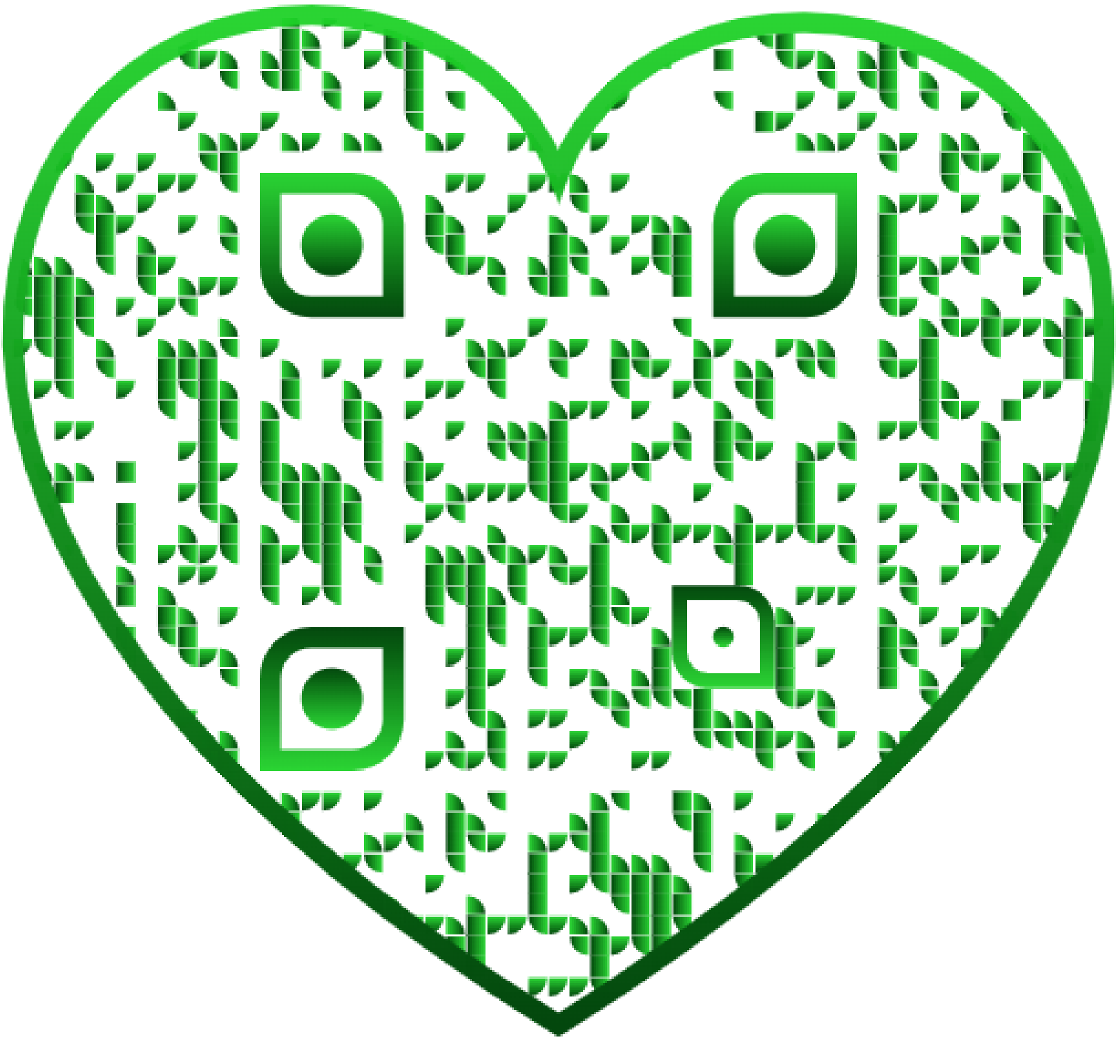

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BRIEFING

It is simply part of the routine that individual participants cancel at airshows. Often it is technical or, in the case of the military, operational reasons which mean that one or other of the participants will not be there as announced or will not be able to show their flying programme. Then, of course, there is Murphy's Law, which always affects the aircraft you were most looking forward to. When you then realise that these highlights were not in the flying programme only because you spent a lot of time taking air-to-air shots with a Short Skyvan, it leaves a bad taste in your mouth. I was really looking forward to the short demonstration by a Canadair CL-215 from the Greek Air Force and when it didn't happen, I thought that the CL-215 had to cancel because of a fire-fighting operation. Of course, I completely understood that, at least until I found out that two (!) aircraft of this type had enough time to fly around with the Skyvan in question. I understand that the "photographers" in the Skyvan pay a lot of money for nice air-to-air photos. It's also understandable that these photos are important to the organiser. But if it's at the expense of the normal enthusiast, then I will reconsider my participation in these events (I also paid €200 for an overpriced and useless spotter ticket - thank you very much).

chiefeditor@checksix-journal.com

Robert Kysela

AIRPOWER24
STEIERMARK

Eurofighter EF-2000A TYPHOON / image by: Robert Kysela

The largest airshow in Europe - this is how the Austrian Armed Forces (OBH) advertise their biennial event. Even if it is not quite clear what this statement refers to (the number of participating aircraft or the large number of spectators?), the size of an event is of no importance to either the normal visitor or the large number of enthusiasts who travel to the event. For aviation enthusiasts in particular, AirPower is the event par excellence. The organisation of the event is unique. Photographers and spotters can take pictures of the flying displays from 16 different points around the airfield. It is possible to move between these spots at any time. No other event offers such a package.

Story & images: Robert Kysela

AUSTRIAN TIGERS
NO STEP
NO STEP
NO STEP
NO STEP
GS 012

AIR POWER 2024

Air Power was the name of the game this year! The number of fast jet displays was disproportionately large (to the delight of enthusiasts) and, in addition to the obligatory presence of the Austrian Armed Forces, could also be seen as a NATO 'show of force'. Every airshow that takes place at regular intervals has some regular guests, i.e. air forces whose participation is already firmly planned. These are often neighbouring countries, such as the Czech Republic, Hungary, Switzerland, Germany and Italy, in the case of Austria. All these countries were represented by large contingents. The USA was also present (and remained so after the event), but more on that later.

Austria has always had good relations with Sweden, so the participation of Swedish aircraft in Zeltweg has always been a matter of course. However, after the Austrian government chose the Eurofighter EF-2000 over the Swedish Saab JAS-39 GRIPEN, relations have cooled somewhat. As at the last AirPower 2022, no Swedish aircraft were on display. Nevertheless, the spectators did not have to do without Saab products. Two JAS-39C GRIPENs were part of the flying display. The first JAS-39C GRIPEN came from Czech Republic from the 211th Tactical Squadron of the 21st Tactical Air Base 'Zvolenská' Cáslav. The Czech GRIPEN was one of the first acts on the show days. At this time of the year the humidity in the Murtal valley is always very high, which leads to a magnificent vapours and play of light and colour on the aircraft. While on Friday, the first show, it was still rainy and the display of the GRIPEN was literally covered by clouds, Saturday had a bit of sunshine in addition to the humidity. Now only two things were missing: a fast jet and some backlighting to get the shots shown here and on the next page.

The second GRIPEN on display came from Hungary, from the 1st Vadászrepülö Század 'Puma' from Kecskemét. This squadron is part of the Szentgyörgyi Dezső 101 Air Wing and operates 18 Saab JAS-39C/D GRIPENs. Meanwhile, the Hungarian GRIPENs have been upgraded by Saab with the MS20 Block 2.1 upgrade, which includes various software updates to the avionics and communications systems as well as the radar (PS-05/A Mk 4) and weapons technology. The JAS-39C can now carry a wide range of weapons, including the Infra Red Imaging System Tail/Thrust Vector-Controlled (IRIS-T) air-to-air missile and the MBDA METEOR, a long-range BVR missile with a maximum range of almost 200 kilometres. The IFF-system has also been upgraded to (NATO) standard.

Saab JAS-39C GRIPEN / *image by Robert Kysela*

Saab JAS-39C GRIPEN - Hungarian Air Force / *image by: Robert Kysela*

Saab JAS-39C GRIPEN Czech Demo

The Czech Air Force (Vzdušné síly) has 14 Saab JAS-39 GRIPEN, of which twelve are single-seaters (JAS-39C) and two are two-seaters (JAS-39D). All GRIPENs are operated by the 211th Tactical Squadron and stationed at Čáslav AB in the centre of the country. The Czech GRIPENs are leased from Saab, with the current lease running until 2027. An extension to 2031 is inevitable as the successor to the JAS-39, the Lockheed Martin F-35A LIGHTNING II, is not due to enter service until that year. The Czech Republic ordered 24 aircraft of this type this year, opting against the further development of the GRIPEN, the JAS-39E (now known as the F-39E)..

The 211th Tactical Squadron has long provided a demo pilot for the presentation of GRIPEN at home and abroad. The active demo pilot, Captain Ondřej Španko, is the fifth Czech GRIPEN demo pilot in a row and already in his second season. He also flew the demonstration in Zeltweg. In addition to the very dynamic solo display, there was also a short formation flight with the Czech FLYING BULLS AEROBATIC TEAM with their four XtremeAir XA42s. During the solo display, Captain Spanko achieved G-forces of up to 9 times his body weight and speeds just below the sound barrier during the high speed pass. The edge delamination and light and colour play is breathtaking when viewed in high humidity and backlight conditions!

Saab JAS-39C GRIPEN / / image by Robert Kysela

Austrofighter EF-2000

The presence of the Eurofighter EF-2000 at AirPower 24 was almost inflationary. No wonder, as this 4th generation fighter is in service with numerous air forces - including the ÖBH. The Austrian Armed Forces have 15 Tranche I Eurofighter EF-2000s, all of which are stationed in Zeltweg. This limits the ability to provide comprehensive and seamless surveillance of Austrian airspace, especially since the retirement of the ageing Saab 105OE. The addition of three (some sources say four) EF-2000s from the Luftwaffe's inventory has been under discussion for some time, but the extent to which this project will be realised, if at all, remains to be seen.

The procurement of the Eurofighter was accompanied by a major political scandal involving the payment of bribes to senior politicians, civil servants and consultants. The exact circumstances, and in particular the names of those involved, are still not known to the public. Although Airbus has admitted to dishonest behaviour and the payment of bribes amounting to €55 million in 2020, the case is still pending!

The second part of the scandal is not really known to the Austrian public, or at least not perceived as particularly serious. This is the irresponsible downsizing of the EF-2000 fleet, which means that the mission of the surveillance wing can only be fulfilled to a limited extent. The original plan was to procure 24 aircraft to be used exclusively to monitor the country's airspace. This number is barely sufficient to ensure continuous and comprehensive airspace surveillance. Following a natural disaster (flooding of the Danube in 2002), the number was reduced to 18 aircraft, only to be revised downwards by a further three aircraft by the then Minister of Defence, Norbert Darabos (SPÖ). In order to save further costs, not only was the number of aircraft reduced, but a conscious decision was also made not to order the latest version, Tranche 2. The infrared targeting system EuroFIRST PIRATE and the self-protection system EuroDASS Praetorian were also omitted, resulting in a significant reduction in the combat capability of the Austrian Eurofighters.

To be fair, does a neutral country like Austria really need a multi-role version of the Eurofighter? As long as Austria is not involved in a military conflict with a neighbouring country, this capability is not needed! The primary task of the Austrian Armed Forces is civil and military air policing. Even in a mission against an enemy combat aircraft, the EF-2000 Tranche I's capabilities to detect, identify, intercept and, in the worst case, shoot down the intruder are more than sufficient. The lack of long-range stand-off weapons such as AMRAAM and the use of a passive infrared targeting system is a 'nice to have' rather than a 'must have' in this area. The Austrian EF-2000s are perfectly capable of fulfilling their role well into 2030 and

Eurofighter EF-2000 TYPHOON - Tranche I / image by: Robert Kysela

Eurofighter EF-2000 TYPHOON - Tranche I / *image by:* Robert Kysela

beyond - provided there are enough aircraft and pilots!

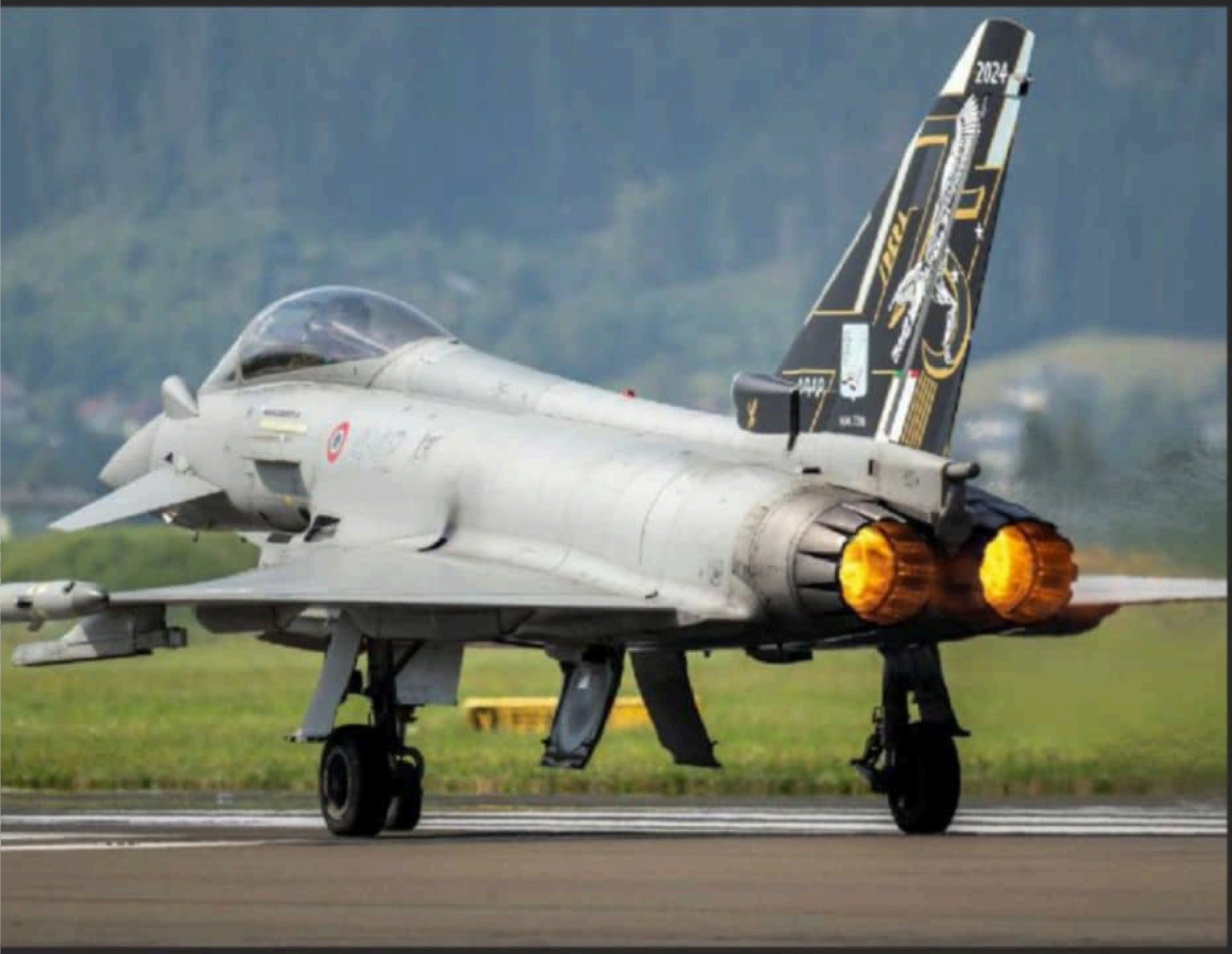
The problem with Tranche I is that the components of this version are no longer being developed or produced, which has a lasting effect on the supply of spare parts and thus on the availability of the aircraft. The fact that maintenance and spares costs are high as a result can be attributed to the short-sightedness of political decision-makers. Of course, the avionics and software of a fighter will need to be updated after a certain period of time. In principle, this is possible for any type of aircraft. In the case of Eurofighter Tranche I, however, it is not possible to draw on existing upgrades and implement them relatively cheaply; instead, a high percentage of them would have to be developed from scratch, which in turn has a negative impact on costs. Procurement of the upgradeable Tranche 2 would therefore have been the better and more cost-effective solution for the Austrian Armed Forces in the long term.

In recent years, the surveillance squadron in Zeltweg and the responsible maintenance and training units have demonstrated a high level of professionalism and personal commitment in ensuring the safety of the airspace over Austria, despite the far too small number of aircraft. During this period, the threat situation was different, interceptions were mainly limited to the civil sector and airspace violations of a military nature were rare. Today, due to the changed global political situation, it is even more important for a neutral state like Austria to have a functioning and modern fleet of high-performance fighter aircraft.

Although the Eurofighter EF-2000 has been a negative topic in the Austrian press for years, it must be clearly stated that the ÖBH currently has the most modern and best aircraft available on the market for the needs and mission of the Surveillance Wing. Compared to the venerable Saab J-35OE DRAKEN, the Eurofighter EF-2000 represents a quantum leap in technological and aeronautical terms. Compared to other fourth-generation fighters, the EF-2000 occupies a leading position. Especially in interception and air policing role, there are few competitors that can hold a candle to the EF-2000. This is what the aircraft was designed for from the outset (Jäger 90). It was only in the course of further development that the pure air superiority fighter (Tranche I) became a multi-role fighter (Tranche 3 and 4).

Undeterred, the ÖBH demonstrated the capabilities of their Eurofighters at AirPower in a simulated intercept mission with two aircraft and a Lockheed C-130H HERCULES. The subsequent solo display by the two EF-2000s was particularly impressive, giving the Styrian audience an idea of the aircraft's potential.

Tropical storm



Eurofighter F-2000A / *image by: Robert Kysela*

Eurofighter F-2000A TYPHOON / *image by: Robert Kysela*

Eurofighter EF-2000 / *image by: Robert Kysela*

In addition to the Eurofighters of the surveillance squadron, two other operators of this European joint project were guests in Zeltweg. Particularly impressive was the demonstration of the Italian Eurofighter F-2000A, which also came from the 311° Gruppo Reparto Sperimentale di Volo (RSV) in Pratica di Mare. Aeronautica Militare currently has 95 Eurofighters from Tranches 1, 2 and 3, with Tranche 2 accounting for the lion's share with 47 aircraft. Italy has just ordered 24 new Tranche 4 aircraft, but these are primarily intended to replace (by 2028 at the latest) the ageing Tranche I versions that Aeronautica Militare has been using now for 20 years. Tranche 4 differs from its predecessors mainly in its EuroRADAR CAPTOR-E, an extremely powerful AESA radar. This radar has twice the range of Tranche 1's CAPTOR-C and is many times more powerful than the obsolete mechanical radar systems (but also 100 kg heavier).

Only one F-2000A (M.M. 7316) is assigned to the 311° Gruppo, although this aircraft is only borrowed from another unit and therefore retains its original designation 4-42. This indicates that the aircraft belongs to the 4° Stormo "Amedeo d'Aosta"/ Grosetto AB. In addition to their main task of flight testing, RSV test pilots are responsible for all displays with AMI aircraft at home and abroad. They are the only ones certified to carry out such demos in front of an audience.

For a long time,Luftwaffe did not have a demo team with any of its aircraft. Its aircraft were present at many shows, but only as static displays. The Luftwaffe leadership at the time, under the Chief of Staff of the Luftwaffe, Lieutenant General Stieglitz, and his successor, Lieutenant General Kreuzinger-Janik, prohibited flying displays at air shows. Fortunately, this order is no longer in force, so the Luftwaffe can once again present itself with a solo show. The Luftwaffe's first official Eurofighter solo display will be provided by TaktLwG 74 from Neuburg, which is also a member of the NATO Tiger Association and therefore uses a specially painted aircraft each season. This year an EF-2000 with registration 31 + 06 was given a great livery dubbed "Cyborg Tiger". Unfortunately the Cyborg Tiger had to stay at home for technical reasons, so two EF-2000s in standard livery were on site.

A somewhat bizarre side note: the Eurofighter display will be flown by a very likeable pilot from TaktLwG 74 with the call sign "Noble". His real name is kept strictly secret in Germany for security reasons (?), so strictly that it is announced in full at almost all events abroad (e.g. in Fairford). The good man can only count himself lucky if he is at least allowed to take off his helmet at an event to show his face, which on closer inspection is a high security risk! Fortunately, this nonsense has no effect on the display, which is no worse than any other EF-2000 display.

Eurofighter EF-2000 / *image by: Robert Kysela*

Boeing F/A-18C HORNET/ / *image by: Robert Kysela*

Hornet´s nest

In addition to the numerous Eurofighter EF-2000s and the two Saab JAS-39C GRIPENs already mentioned, the flight programme also included other combat aircraft. These included two Boeing F/A-18C HORNETs from Switzerland and Finland. It is always interesting to see how different the performance of one and the same type of aircraft can be. Of course, every demo pilot tries to include one or two manoeuvres in his flight programme in order to stand out from the competition. While the Swiss F/A-18 solo demonstrator, Captain Marcel "Frodo" Rust, relied more on vertical manoeuvres to demonstrate the sheer power of his aircraft, the Finnish pilot, Captain Petteri Kairinen from the 31 Fighter Squadron, often stayed horizontal, demonstrating the excellent manoeuvrability of his F/A-18C. When he did perform a vertical manoeuvre, he often emphasised this by firing flares, which of course always went down very well with the spectators. Both the Swiss and the Finnish displays were absolutely brilliant. Which was better is a matter of taste. One small detail remains to be mentioned: the points for the take-off clearly go to Captain Kairinen, who pulled his plane steeply upwards shortly after take-off and a short straight flight. In comparison, the take-off of the Swiss F/A-18 was rather boring. Captain Rust lifted his aircraft off the runway, retracted the landing gear and climbed slowly and gently into the sky.
A spectacular take-off used to be the highlight of most demonstrations. Anyone who was lucky enough to see the Dutch solo F-16 take off in the 1990s will know what I'm talking about!

So, to all current and future demo pilots, pull yourself together and start your display as if you were practising an emergency take-off with a (fictitious) enemy aircraft at your 6 o´clock - the audience will thank you!

Mille Grazie Italia!

Leonardo T-346A MASTER / *image by: Robert Kysela*

An airshow is not only a public event, it also serves as a marketing event for various products in the aviation industry. This can be seen time and time again. If a company wants to promote one of its products, it will appear at all the major air shows in the country. This explains, for example, the massive presence of Lockheed Martin at many events in countries whose air forces are potential buyers of a Lockheed product, much to the delight of the spectators. As well as Lockheed, which has a good chance of winning a contract with the Austrian government to buy the Lockheed Martin F-35A LIGHTNING II to replace the Eurofighter EF-2000 for the Austrian Armed Forces, it was mainly the Italians who used their strong presence to promote their products. Specifically, the Leonardo M-346 MASTER. The Austrian government has for some time been looking for a successor to the Saab 105OE, which was withdrawn from service at the end of 2020. The 105 was used in Austria not only as a trainer but also as a light ground attack aircraft. For a long time, the little Saab was solely responsible for all of Austria's air surveillance, but this changed with the procurement

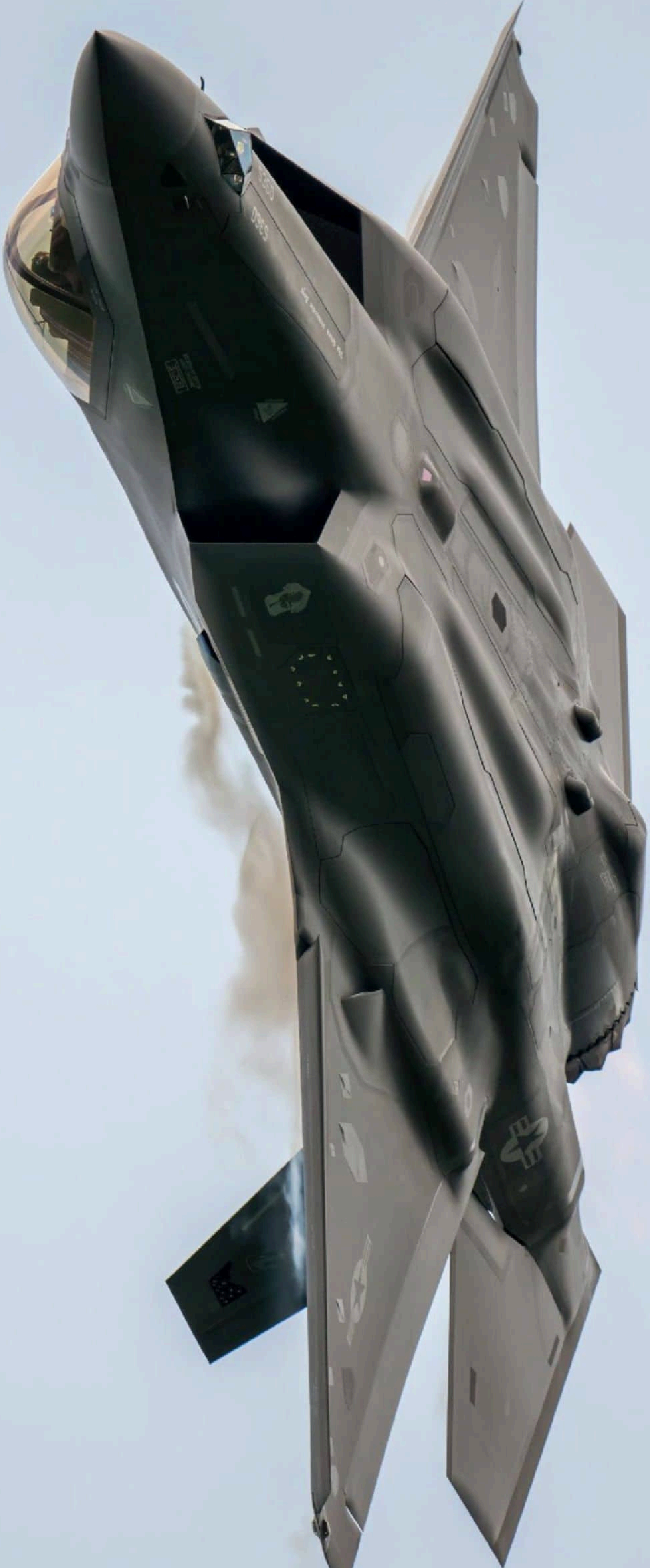
2024
SPERA
1949
T-346A
MM55220

Leonardo T-346A MASTER / *image by: Robert Kysela* of the Saab J-35OE DRAKEN in 1987. Since the decommissioning of the 105, there has been a large gap in the country's defence capabilities. Not only does the training of new Eurofighter pilots still have to take place abroad, but the required flying hours for Austrian pilots also have to be completed on the (expensive) EF-2000.

For some time now, the Aero L-39NG has been discussed as a lead-in/fighter trainer to fill this gap, but no concrete offer has been made. But now things seem to be moving. According to Defence Minister Claudia Tanner, Leonardo has submitted an "interesting offer" for the supply of twelve M-346FA* aircraft, which is being examined by the ministry. What this means in concrete terms will become clear in the coming months. However, as Austria held elections in the autumn and the result led to a difficult government formation, we will have to wait and see which government or coalition will lead the country in the future. Until then, it is unlikely that a final decision on the purchase of the state-of-the-art Italian-made trainer will be made.

* FA = Fighter/Attack; this version is not a pure trainer but a light ground attack aircraft

Leonardo T-346A MASTER / *image by: Robert Kysela*



Lockheed Martin F-35A LIGHTNING II / *image by: Robert Kysela*

US appearance

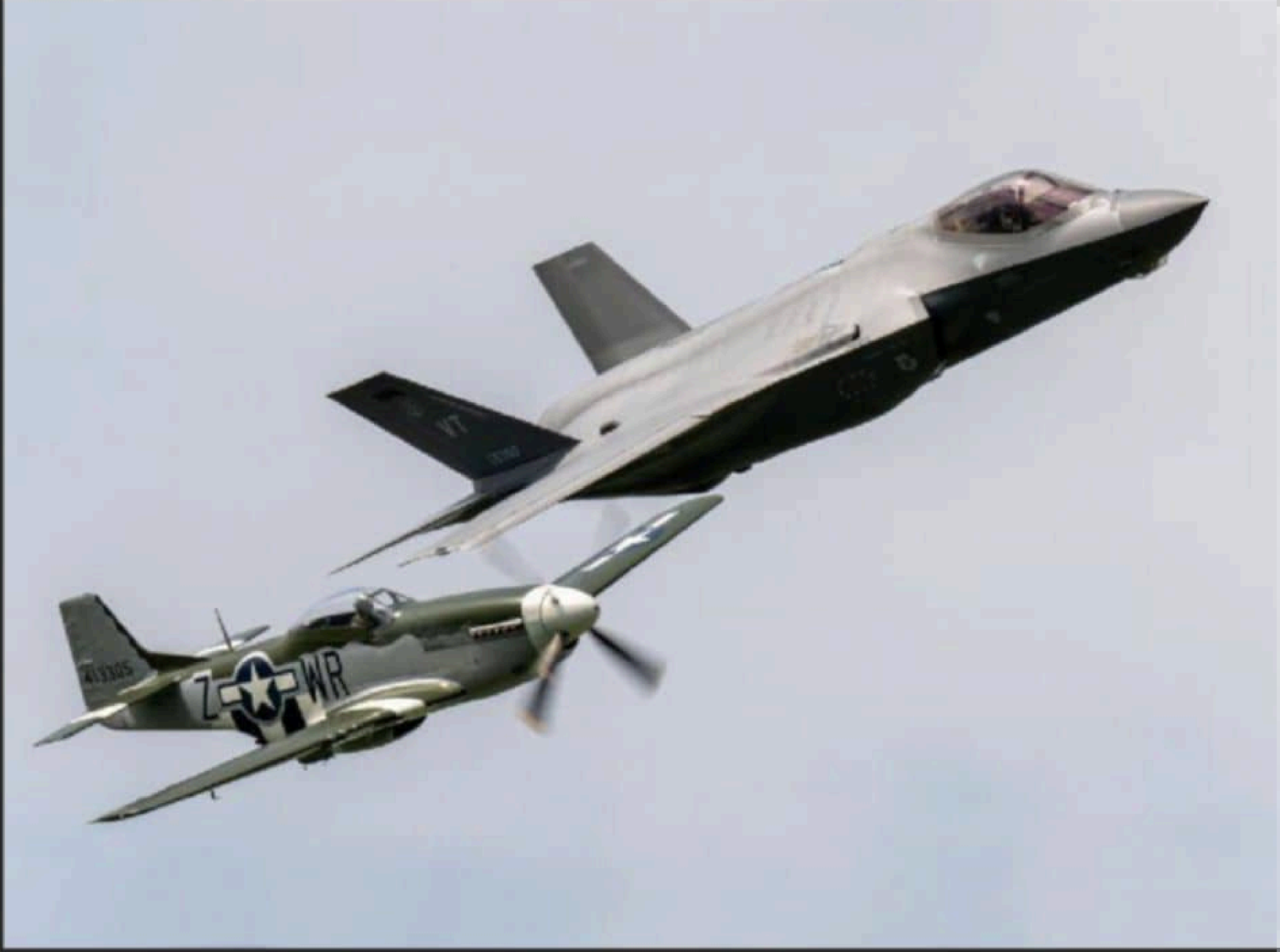
The Vermont ANG (Air National Guard) was also present in Zeltweg with four Lockheed Martin F-35A LIGHTING IIs, one of which was used for the daily flight demos. This was not flown by a Vermont ANG pilot, but by the official USAF demo pilot, Capt. Melanie "Mach" Kluesner. It was the first appearance of an F-35 at an Austrian event and the public interest was accordingly high. The F-35 has enjoyed exceptional sales success in recent months and years. This was, of course, triggered by the events in the Ukraine, but also by a very active marketing strategy by Lockheed Martin. Austria has now appeared on the AN/APG 81 radar screen of the F-35A as a potential target. The ongoing debate over the future of the Eurofighter EF-2000 in the Austrian armed forces has once again put the Alpine republic in the aviation spotlight.

The solo display by Capt. "Mach" Kluesner was not only a highlight for the Austrian audience, but also began with a show rarely seen at European airshows - the Heritage Flight. A fast jet, in this case the F-35, forms an impressive formation with one or more warbirds of US origin. These formations are now an integral part of air shows in the USA. In order for them to be flown, the pilots of the warbirds and the demonstration pilots must be certified by the USAF. Three North American P-51 MUSTANG from the Horseman Flight Team were guests at AirPower. One of the pilots of this unique team is none other than Jim Beasley Jr, the pilot whose idea was largely responsible for the establishment of this formation. The first Heritage Flight took place at Shaw AFB in 1996. The certification of the Heritage Flight crews takes place at Davis Monthan AFB in Arizona before the start of the season (late February/early March). The Horseman Flight Team was also present in Zeltweg with their own programme, much to the delight of the spectators.

Austria is a small country with a gross national product of over USD 516 billion (2023), a relatively high figure compared to its population of 9.16 million. Nevertheless, the high expenditure on national defense has always been difficult to explain to the public. This was already a major political issue when the second-hand Saab J-35OE DRAKEN was purchased in the mid-1980s, and was not helped by the decision to buy its successor, the Eurofighter EF-2000. The changed current security situation has naturally increased the willingness of the majority of the population to accept higher military spending, and politicians would be well advised to use this window of opportunity to clarify the question of how and, above all, with which weapon system the country's air defense should be carried out in the coming decades. Whether the ultimate solution for the Austrian armed forces must be the Lockheed Martin F-35A LIGHTNING II remains to be seen. The question of whether it makes sense for a neutral country to acquire a highly complex weapon system whose capabilities go far beyond defensive airspace surveillance must be asked by those responsible.

Lockheed Martin F-35A LIGHTNING II / *image by: Robert Kysela*

Lockheed Martin F-35A LIGHTNING II / *image by: Robert Kysela*



Heritage Flight / image by: Robert Kysela

Techn. Specs: Leonardo C-27J SPARTAN

Length:	74 ft 6 in (22,70 m)
Height:	31 ft 8 in (9,64 m)
Wingspan:	94 ft 2 in (28,70 m)
Take-off weight:	71 650 lbs (32 500 kg)
Vmax.:	374 mph (602 km/h)
Rate of climb:	1 250 ft/min (10 m/s)
Range:	950 nm (1 759 km)
Powerplant:	2 x Rolls-Royce AE2100-D2
Performance:	2 x 3 458 kW (2 x 4 637 PS)
max. Load:	24 912 lbs (11 300 kg)

Leonardo C-27J SPARTAN / image by: Robert Kysela

Aerobatic Cargo-Lifter

Admittedly, transport aircraft are quite impressive due to their size and of course their ability to carry large, bulky loads, but in a flight demonstration they tend to be rather sluggish and apart from a few more or less boring fly-bys there is not much to excite the spectators. This is true of much of the genre, but certainly not of the Leonardo C-27J SPARTAN. The manoeuvres this aircraft can perform with an experienced crew are almost unimaginable. Taking off in the style of an F-16 after a few hundred metres is the least spectacular manoeuvre. Once in the air, the SPARTAN shows that it can perform manoeuvres such as loops and barrel rolls normally reserved for agile fighters. Of course, the C-27J SPARTAN can only perform these manoeuvres when empty. These manoeuvres have no relevance to the military use of this aircraft as a tactical transport, but they are certainly spectacular.

The aircraft on display in Zeltweg, like most of the Italian demonstrators, belongs to the 311° Gruppo RSV (Reparto Sperimentale di Volo) - the Italian Air Force's flight test centre based in Pratica di Mare. The crew is made up of RSV test pilots who use this dynamic display to demonstrate not only the capabilities of this transport aircraft, but also their own flying skills.

Patrouille Suisse

The Swiss aerobatic team PATROUILLE SUISSE has been an integral part of the European airshow scene for 60 years (!). With their beautifully painted Northrop F-5E TIGER IIs, they have not only thrilled their own audience in Switzerland, but have also been the highlight of numerous air shows throughout Europe. Unlike most other aerobatic teams, the PATROUILLE is not a full-time aerobatic team, i.e. the pilots are not assigned exclusively to the PATROUILLE SUISSE for a certain period of time (usually two years). The pilots do their regular service in the Swiss Air Force, beside flying with the PATROUILLE SUISSE.

The PATROUILLE was founded in August 1964 as a four-ship formation flying Hawker HUNTER Mk 58s. For the first years (until 1978), the Swiss aerobatic team could be seen in Switzerland only. This was due to the rigorous observance of Swiss neutrality, which prohibited the use of Swiss military equipment abroad. Fortunately, this rule was relaxed so that spectators abroad could also admire the Swiss displays. The PATROUILLE SUISSE flew the HUNTER for 30 years until it was replaced by the F-5E TIGER II in 1994. This change also brought with it a visual "upgrade". While the HUNTER only had a paint scheme in the national colours on the underbelly, the F-5E was given a very attractive paint scheme all over. The sleek machine combined with the appropriate livery is a trademark of the Swiss - of course together with a very well choreographed and dynamic flight programme.

The PATROUILLE SUISSE has been declared dead on several occasions. As early as 2013, the then Swiss MoD, Ueli Maurer (SVP), wanted to disband the team. The next attempt came in 2022, when the Federal Council announced the end of the PATROUILLE in 2025. Fortunately for the Team, this decision was overturned by the Council of States. Support for the PATROUILLE is very strong, not only among aviation enthusiasts, but also among large sections of the population. Of course, there are also forces in Switzerland that do not like any form of military aviation. The arguments of these forces are always the same: too expensive, too noisy, too harmful to the environment...! According to the latest reports, the team will continue to fly in its current configuration until at least 2027. But the clock is ticking for this fascinating team, and not just because of a few climate fanatics. The squadron's Northrop F-5E TIGER IIs date from the 1981 procurement programme, so they have more than 40 years of service under their belts. Maintaining flight operations is therefore becoming increasingly difficult. What about the future? Nobody knows at the moment. Anything is possible, from a switch to the Pilatus PC-21 to a complete shutdown. In any case, it was again a real pleasure to see the F-5E circling over the Murtal - Gruezzi and to see you again!

PATROUILLE SUISSE / image by: Robert Kysela

PATRULLA AGUILA / image by: Robert Kysela

Patrulla Aguila

The next aerobatic team to perform at AirPower 24, Spain's PATRULLA AGUILA, faces similar problems to PATROUILLE SUISSE. The AGUILA flies an aircraft that is slowly reaching the end of its life cycle. The CASA C-101 is a small single-engine training and light ground attack aircraft that had its maiden flight on 27 June 1977. A total of 88 aircraft have been delivered to the Ejercito del Aire training units (including the 14 aircraft that serve with the PATRULLA AGUILA). With the exception of the PATRULLA, all C-101s have now been replaced by Pilatus PC-21s. Spain ordered a total of 24 of these turboprop trainers from Pilatus by 2020 and last year extended this order by another 16 aircraft.

But there is one thing that distinguishes the Spanish from the Swiss. The former are very proud that their national aerobatic team flies a home-made aircraft. So for the PATRULLA AGUILA, switching to the Pilatus PC-21 is out of the question. The C-101 was developed entirely in Spain and, despite support from the German company MBB and the US group Northrop, is a purely Spanish product apart from the engine. Unlike many countries that use modern turboprop aircraft such as the PC-21 as advanced trainers to train their jet pilots, the Spanish see the C-101 only in this role until a modern advanced trainer is available. Although there are now a few models on the market (Leonardo M-346 MASTER; Boeing T-7A RED HAWK), Spain has opted for a new development in which the Spanish aeronautical industry will play a major role. The aircraft, called AFJT (Airbus Future Jet Trainer), is at least externally similar to the AT-2000 MAKO design study, although this has been repeatedly denied. Thanks to the Spanish initiative, this new trainer could shake up the advanced/lead-in trainer market. According to earlier statements, the first flight of the prototype should take place in 2025. However, it has since emerged that Airbus' parent company would prefer to work with Leonardo. If this is indeed the case, this zigzagging by Europe's largest aeronautics group is a sad example of how, in order to avoid risk, one can abandon one's own developments, thereby relinquishing competence and leaving important market shares to others.

The lack of a modern successor to the CASA C-101 makes the future of the PATRULLA AGUILA even bleaker than it was three or four years ago. It remains to be seen whether the Ejercito del Aire will be able to maintain a national aerobatic team even without its own aircraft. Until then, we will take every opportunity to await the announcement of Captain Luis Verjano, the charismatic spokesman for the PATRULLA, when he will comment in his inimitable way on the magnificent display of the pride of the Ejercito del Aire: RATATATATATA - fantastico!

Agusta Bell AB-212 / image by: Robert Kysela

Sikorsky UH-60 BLACKHAWK / image by: Robert Kysela

Airbus Helicopters NH-90 / image by: Robert Kysela

Jason and the Argonauts

Helicopters are an essential part of the Austrian Armed Forces. Especially in high alpine regions, helicopters are the only way to deploy personnel and equipment quickly and precisely. However, these special conditions also require special machines with sufficient performance for use in the mountains. Most helicopter models are designed for use close to the ground and lose power quickly as they climb. As a result, the Austrian Armed Forces only consider selected helicopter models. Unfortunately, one of the best machines in the Austrian Armed Forces' inventory, the Aerospatiale ALOUETTE III, was finally taken out of service in the middle of this year and replaced by the Leonardo AW 169 LION. The hopes of many spectators to see the new model in a solo performance were unfortunately not fulfilled. Although the AW 169 took part in a scenario at the end of the event with all the helicopters used by the Austrian Armed Forces, the latest model of the Austrian Armed Forces did no more than a short hover followed by a fly-past of the spectators.

The scenario in question was a reenactment of the Greek legend of the Argonauts, with actors being pulled past the audience on a trailer. A number of helicopters were to recreate the waves of this sea voyage. What the legend of the Argonauts has to do with aviation and especially air power was not really clear to us and most of the audience. Of course, it is not our job to judge the attempt to add an artistic component to an aeronautical event. A similar attempt was made at a Red Bull Airshow in Wiener Neustadt in 1997. Again, Greek mythology was used for a questionable show act (an actor dressed as the Greek god Zeus sat on a Saab DRAKEN being pulled by a tractor past the spectators). The reaction of the audience was accordingly mixed. While those who had little or nothing to do with aeroplanes found the show very interesting, the majority of enthusiasts were of the same opinion: Zeus, the father of the gods, in the form of the Greek Air Force's Lockheed Martin F-16C is more than enough to translate Greek mythology into reality! As so often in life, it all comes down to personal taste. At least there were plenty of Austrian Army helicopters in the air for the scenario. Whether Jason and his Argonauts were able to capture the Golden Fleece in the end was unfortunately not visible from our vantage point.

In addition to the Austrian Armed Forces' helicopters, two machines from the German Armed Forces wowed the audience with their solo displays. First and foremost, of course, was the Airbus Helicopters EC-665 TIGER KHT of the Fritzlar Combat Helicopter Regiment 36, which demonstrated its enormous manoeuvrability to an astonished audience. The NH-90 multi-purpose helicopter of the Transport Aviation Regiment 10 from Faßberg was in no way inferior to the TIGER - only the final highlight of the "Heideflieger*" demonstration, the mass firing of flares at the end of the show, was unfortunately not shown in Zeltweg.

*the name Heideflieger refers to the location of the unit in the Lüneburg Heath (Heide)

Airbus Helicopters EC-665 TIGER KHT / *image by: Robert Kysela*

Agusta Bell OH-58 KIOWA / image by: Robert Kysela

On the AirPower weekend, 300,000 spectators flocked to the Hinterstoisser airbase in Zeltweg - a more than impressive number. Whether this confirms the statement: "Europe's largest airshow" is debatable and, in my opinion, completely irrelevant. AirPower is by far one of the best shows in Europe and I believe that anyone who has been there will confirm this statement. We are already looking forward to the next event in Zeltweg, hopefully we won't have to wait too long (2026?). On that note, I bid you farewell in Austrian style:: Servas, Pfiati und Baba!

Robert Kysela

THE ROYAL INTERNATIONAL AIR TATTOO

19-21 July 2024 RAF Fairford

Story: Robert Kysela
images by: Will Moore & Rob Kysela

image by: Robert Kysela

Hawker HUNTER F.Mk6 / Lockheed Martin F-35A

One of the special features of the annual Royal International Air Tattoo at RAF Fairford is the theme of the event. Invitations are sent out to participants accordingly, leaving nothing to chance. This year there were four themed areas presented to the 220,000 visitors over the three days of the show. First and foremost was the 50th anniversary of the General Dynamics/Lockheed Martin F-16 FIGHTING FALCON, with a strong presence in both the flight programme and the ground display. At the same time, the Panavia TORNADO and the British classic BAe HAWK will also be celebrating the 50th anniversary of their first flight. With NATO celebrating its 75th anniversary this year, this anniversary has also received a great deal of attention. As if that weren't enough, Fairford also celebrated another anniversary - the centenary of the Royal Canadian Air Force. Only one anniversary was somewhat neglected due to the enormous number of other focal points - the 80th anniversary of the invasion of Normandy.

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Lockheed Martin F-16AM

Royal Netherland Air Force / *image by: Robert Kysela*

50 Years of F-16

In the last issue we published a detailed report on the General Dynamics/Lockheed Martin F-16, so we will not go into the history of this successful fighter aircraft here, but report exclusively on the guest aircraft that will be on site at RIAT 2024.

The FIGHTING FALCON line-up was more than impressive - a total of 18 (!) aircraft of this type were present, including some real rarities such as an F-16C and an F-16D from the Royal Moroccan Air Force. The Moroccan Air Force has been equipped with Western material since the mid-1960s, making it one of the few North African countries that has not been under Moscow's spell for decades. This is because its eastern neighbour Algeria was supported by the Soviet Union during a conflict between the two countries in 1963, after which the Moroccan government broke off relations with the USSR. The country has 24 F-16C/D Block 52s stationed at Ben Guerir airbase, north of the city of Marrakech.

The Hellenic Air Force was also present. This time, however, not with its F-16 ZEUS demo team, but with two aircraft of the 336 Mira "OLYMPOS" from Araxos Air Base. This unit has been flying F-16C/D Block 52 variants since 2015. While an F-16C Block 52+ was also on display in the air on Friday 19 July to mark NATO's 75th anniversary, the two-seater (F-16D) with its special livery for the occasion could only be admired in the ground display. The aforementioned single-seater, which had also been given a new rear livery for the occasion, was also on display over the weekend. The 336 Mira has a total of fourteen aircraft of this type, including ten F-16C and four F-16D FIGHTING FALCON. The only F-16 operator that unfortunately had to cancel its participation was the Polish Air Force. Due to a fatal accident involving a Leonardo M-346 BIELIK in which the demonstration pilot Major Robert "Killer" Jełł tragically lost his life, the Polish Air Force's participation in this year's Air Tattoo was cancelled at short notice.

One of the largest operators of Lockheed Martin's F-16 FIGHTING FALCON outside the USA is the Dutch Air Force, although the F-16 has since been phased out in favour of the newly procured F-35A. Together with Belgium, Denmark and Norway, the Netherlands was the first major foreign customer to lay the foundation for the success of the F-16 with the procurement of the F-16A/B. The air forces of these four countries, known as the European Participating Air Forces (EPAF), procured the F-16s together and also carried out a joint modernisation programme, the MLU (Mid Life Update). The Norwegian Air Force will also retire its F-16s at the end of 2021. Some of the Norwegian aircraft (32) were sold to Romania, while another six were reportedly delivered to Ukraine. Interestingly, Belgium had initially refused to hand over its F-16s to Ukraine on the grounds that they were no longer operational due to their age and high number of flight hours (over 8,000 hours in some cases). In May this year it was announced that Ukraine would receive 30 of the aircraft after all - apparently the kilometre (hour) counter has been turned around?

F-16D Block 52 - Royal Moroccan Air Force / *image by: Robert Kysela*

F-16C Block 52+ - Hellenic Air Force / *image by: Robert Kysela*

F-16AM - Royal Netherlands Air Force / image by: Will Moore

Solo Türk

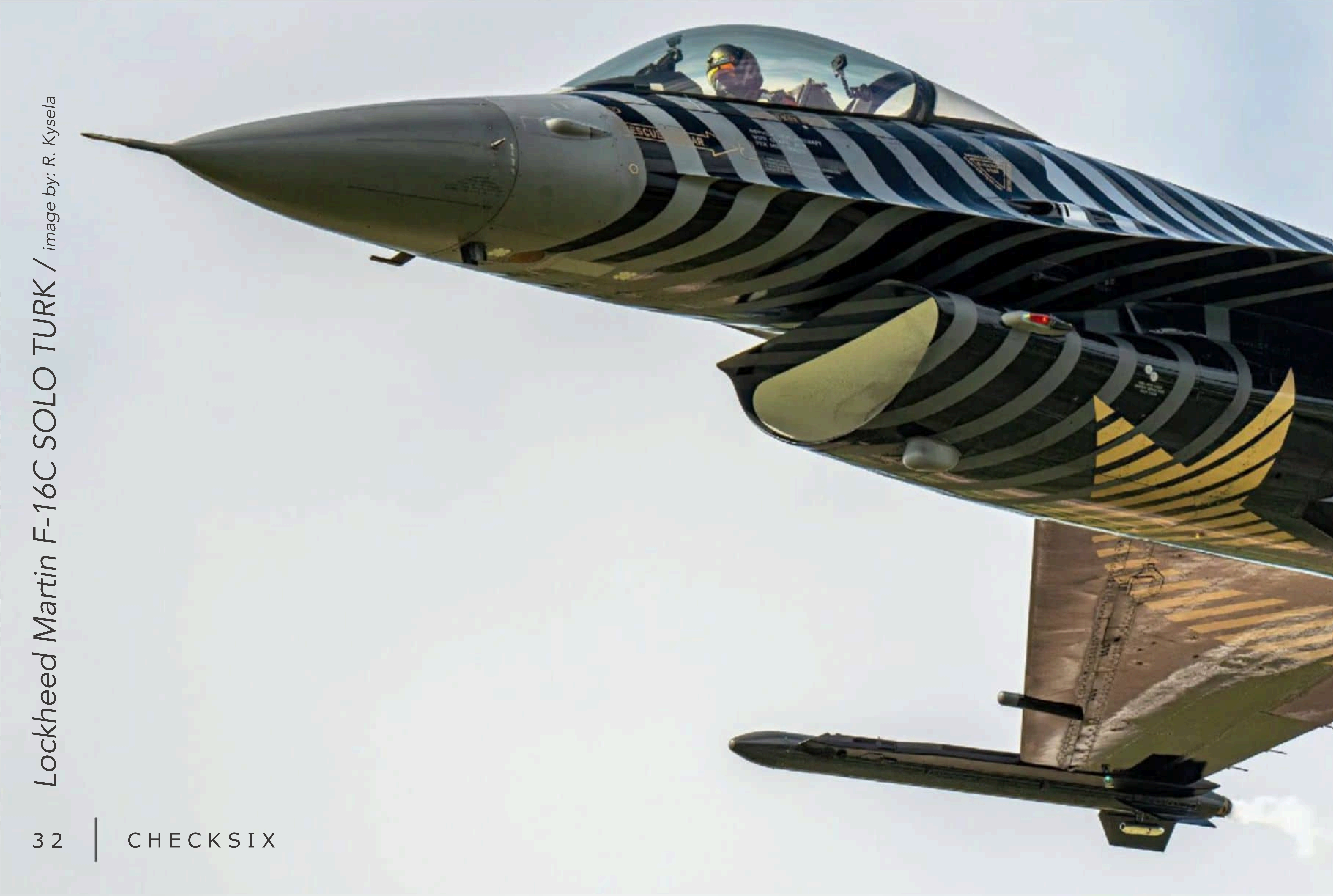
One of the largest operators of the Lockheed Martin F-16 FIGHTING FALCON is the Turkish Air Force (Türk Hava Kuvvetleri - THK). With a total of 270 aircraft, Turkey is the third largest operator of this fighter after the USA and Israel. Turkey has always managed to equip its air force with the most modern equipment available, so it was not surprising that the Turkish government placed an order for the procurement of 156 C and D series (Block 30) aircraft as early as 1983. Only the first eight aircraft were to be built in the USA, with the remaining 148 to be manufactured under licence by the state-owned Turkish Aerospace Industry (TAI) in Akinci, a small town north-west of the capital Ankara. Production of the first batch of Turkish F-16s (Block 30) began in 1987 and the first aircraft were delivered in the same year. The whole thing was known as PEACE ONYX I and was handled under the Foreign Military Sales (FMS) programme.

In 1992, a further 80 F-16C/Ds from the Block 50 lot were ordered under the name PEACE ONYX II. This was followed by two further procurement programmes (PEACE ONYX III & IV), the first for 40 aircraft and the last for 30 F-16C/Ds. These aircraft were also built at Akinci. A total of 306 F-16C/Ds were built for the Turkish Air Force in lots 30/40/50, of which 270 are still in active service today. The Turkish aerospace industry has not only proven its ability to produce and develop high-tech products, but has also begun to catch up with the market in terms of technology with indigenous developments such as the TAI KAAN, a twin-engine aircraft.

Speaking of Akinci, this was also the first public appearance of the Turkish F-16 Solo, the so-called Solo Türk. On the occasion of the 100th anniversary of the Turkish Air Force in 2011, an F-16C Block 30 was given an attractive black, silver and gold livery (the replacement aircraft has since been painted the same). The vertical fin is decorated with a golden eagle's head and the Turkish coat of arms (crescent with star) is stylised on the underside. With this cool livery, but above all with a grandiose flying programme, the Turks have been delighting millions of spectators outside Turkey ever since. Incidentally, the Turks deliberately chose the older Block 30 version for their demonstration aircraft. This version has an enlarged air intake, the General Electric F110-GE-100 turbofan engine and is lighter and therefore more manoeuvrable than the later variants.

The Solo Türk F-16 display differs from other F-16 displays in a number of ways. Numerous spectacular manoeuvres, such as the dolphin pass, where the aircraft performs pitching manoeuvres (like a dolphin) along the longitudinal axis of the aircraft to demonstrate the performance of its fly-by-wire system, make the Turkish display a special experience.

Originally stationed at the Akinci base, the Solo Türk demo team was relocated to the Konya base following the failed coup in Turkey in 2016. The team consists of a maintenance crew of nine, Public Relation Officer Mustafa Bircan Biçer, who also acts as spokesman during the flight demonstrations, and his deputy. The current demonstration pilot is Major (Binbaşı) Murat Bakıcı, assisted by Major Yassin Dikkule as backup display pilot.



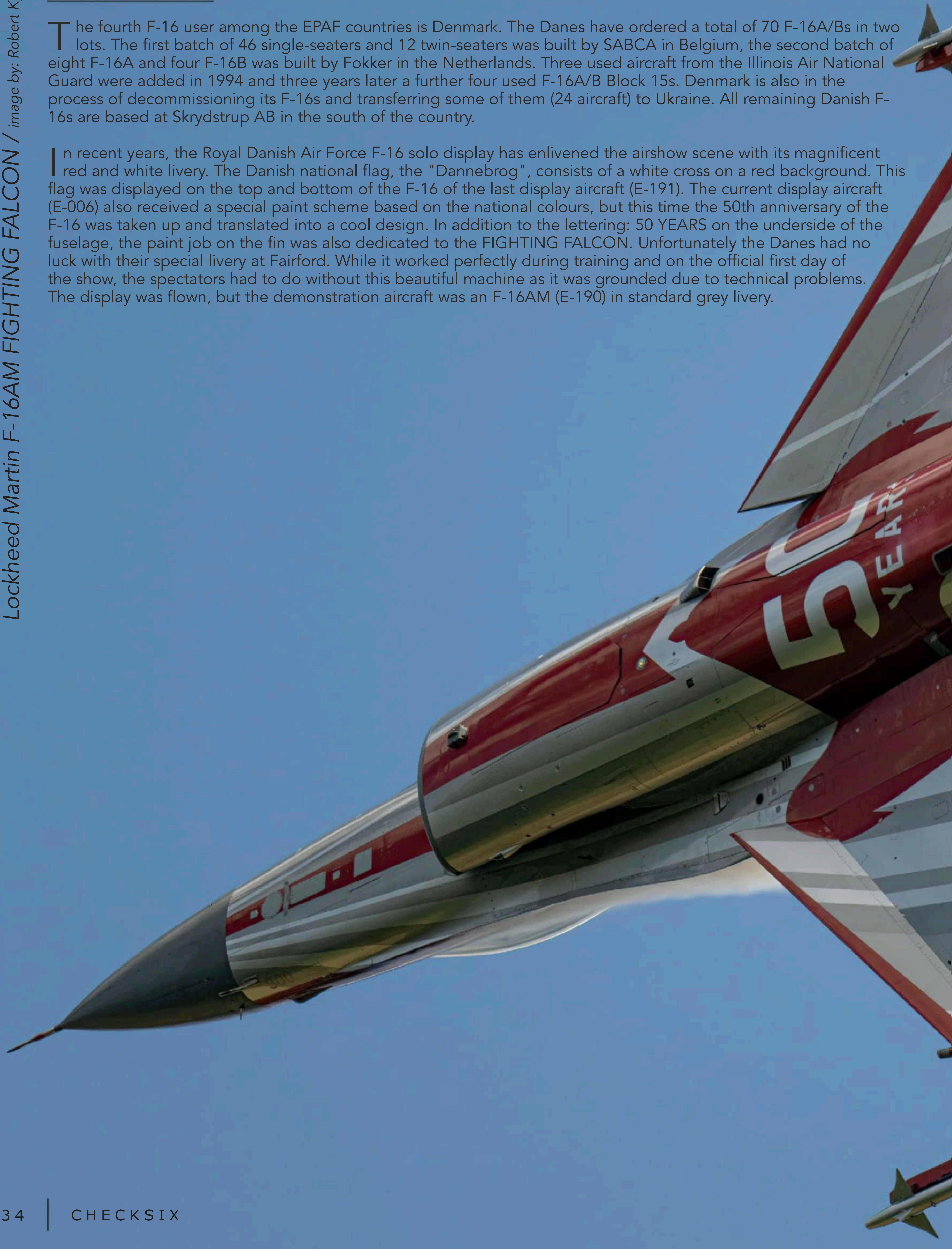
Lockheed Martin F-16C SOLO TURK / *image by: R. Kysela*

Lockheed Martin F-16C Block 30 SOLO TÜRK/ Foto: Robert Kysela

Danish Falcon

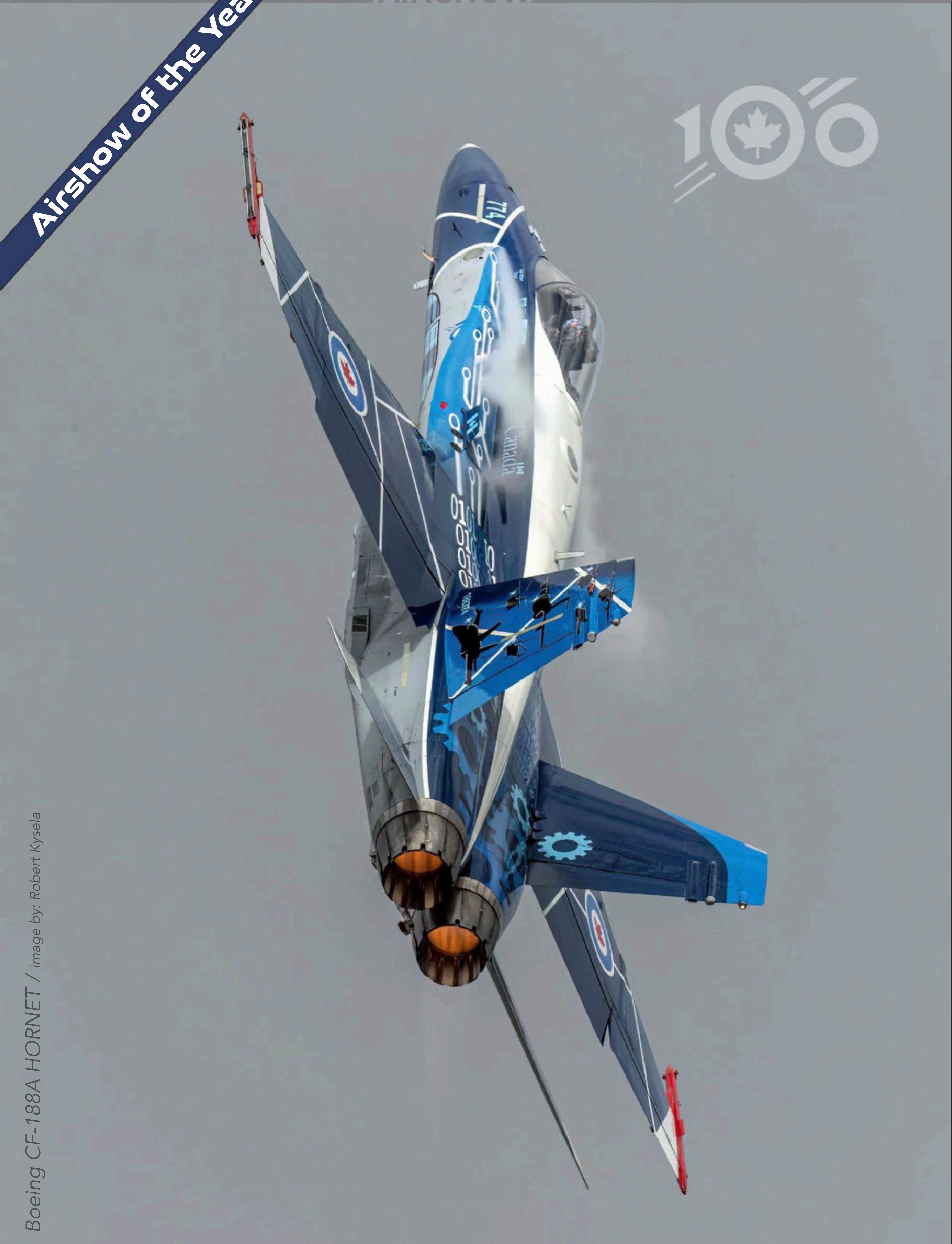
The fourth F-16 user among the EPAF countries is Denmark. The Danes have ordered a total of 70 F-16A/Bs in two lots. The first batch of 46 single-seaters and 12 twin-seaters was built by SABCA in Belgium, the second batch of eight F-16A and four F-16B was built by Fokker in the Netherlands. Three used aircraft from the Illinois Air National Guard were added in 1994 and three years later a further four used F-16A/B Block 15s. Denmark is also in the process of decommissioning its F-16s and transferring some of them (24 aircraft) to Ukraine. All remaining Danish F-16s are based at Skrydstrup AB in the south of the country.

In recent years, the Royal Danish Air Force F-16 solo display has enlivened the airshow scene with its magnificent red and white livery. The Danish national flag, the "Dannebrog", consists of a white cross on a red background. This flag was displayed on the top and bottom of the F-16 of the last display aircraft (E-191). The current display aircraft (E-006) also received a special paint scheme based on the national colours, but this time the 50th anniversary of the F-16 was taken up and translated into a cool design. In addition to the lettering: 50 YEARS on the underside of the fuselage, the paint job on the fin was also dedicated to the FIGHTING FALCON. Unfortunately the Danes had no luck with their special livery at Fairford. While it worked perfectly during training and on the official first day of the show, the spectators had to do without this beautiful machine as it was grounded due to technical problems. The display was flown, but the demonstration aircraft was an F-16AM (E-190) in standard grey livery.



Lockheed Martin F-16AM FIGHTING FALCON / image by: Robert Kysela

HALF CENTURY
FIGHTING FALCON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Boeing CF-188A HORNET / *image by: Robert Kysela*

100th Ann. RCAF

Another highlight of Air Tattoo 2024 was the presentation of the Canadian Forces CF-18 Demonstration Team with their beautifully painted commemorative aircraft. To mark the centenary of the Royal Canadian Air Force, a McDonnell Douglas CF-188 HORNET was given a stunning custom livery, the design of which was the result of a competition within the RCAF. The winner, Mast Corporal Kevin Kelly, knew best how to implement the Air Force's procedures. These stipulated that the special livery should depict the following main themes Innovation and Technology, the history and heritage of the RCAF, the theme of Air Power and the people who serve the RCAF. Unfortunately, the CF-18 also experienced technical problems and the demonstration on Friday 19 July was flown with the replacement aircraft. The RCAF operates 92 HORNETs which are currently undergoing an upgrade program (Hornet Extension Project - HEP).

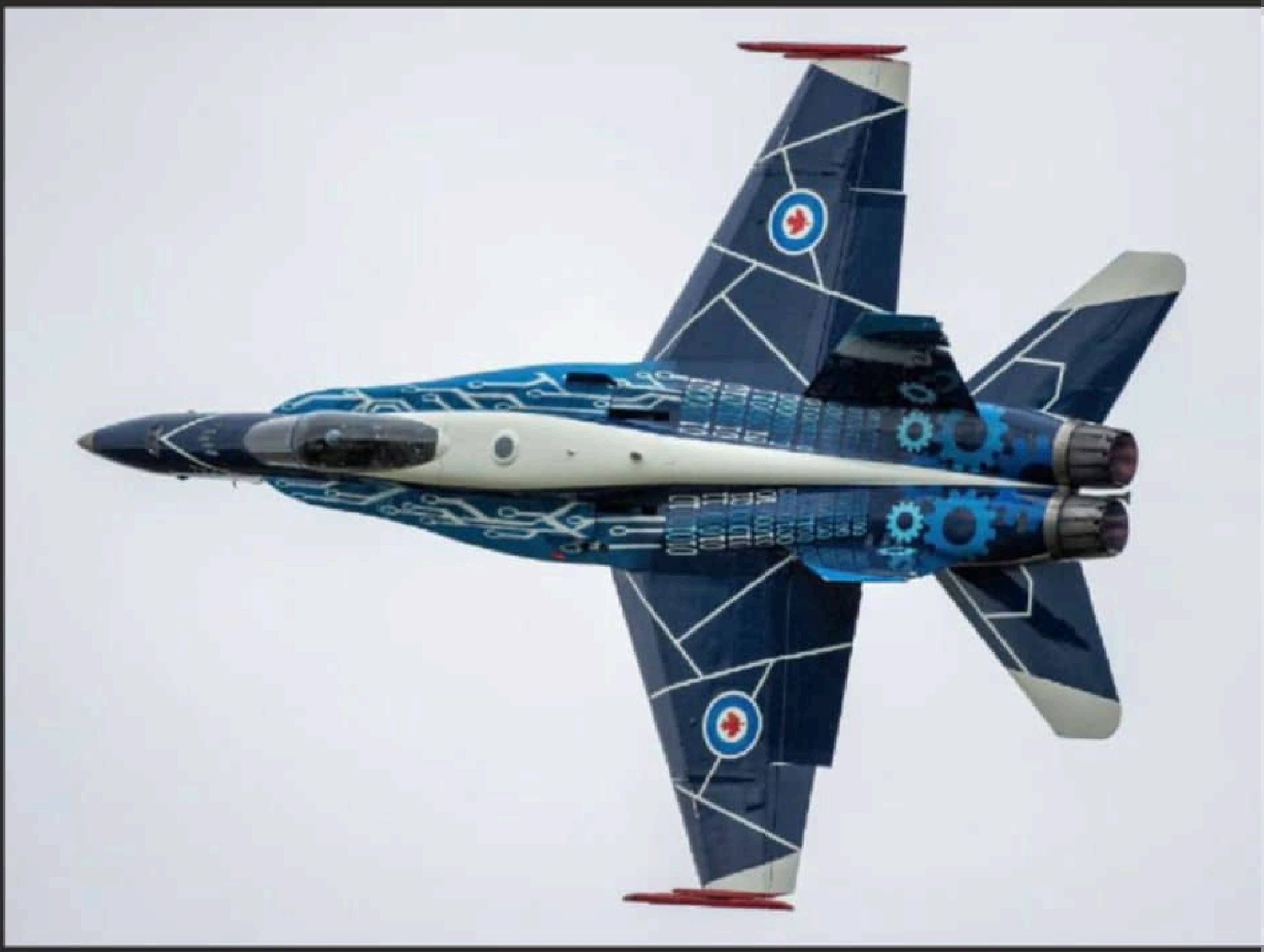
By the way, the designation CF-188 is not a typo. Canada has been using its own designation system for its flying inventory since 1968. A three-digit number is used in combination with two letters. The first letter is always a C (for Canada) and the second letter stands for the type of aircraft. For example, the F stands for fighter, the C for cargo and the T for trainer. The three-digit numerals often (where possible) refer to the original manufacturer's designation (e.g. CC-130 HERCULES), but this is not necessarily fixed (e.g. CF-116 = Northrop F-5 FREEDOM FIGHTER).

The presence of Canadian aircraft at this year's Air Tattoo was impressive. In addition to a Boeing CC-177 GLOBEMASTER III, a Lockheed Martin CC-130J HERCULES and an Airbus CC-150 POLARIS (Airbus A310-300) from CFB Trenton's 437 Transport Squadron, spectators could also admire a specially painted Bell CH-146 GRIFFON. The latter is the Canadian version of a Bell 412EP. A de Havilland VAMPIRE FB.52 from the Norwegian Air Force Historical Squadron took on the historic role. Canada received the first of its 85 VAMPIRE Mk.3s in 1947/48. The VAMPIRE was the first fighter in the RCAF arsenal, but was only a stop-gap until the more modern North American F-86 SABRE became available. These were built under licence by local industry.

Canada has always been closely associated with the British Empire, and the current King of Great Britain, Charles III, is formally the country's supreme sovereign. It is therefore not surprising that the history of the RCAF is closely linked to that of the British Royal Air Force. In the early years, the structure of the Canadian Air Force was very similar to that of the RAF, and the uniforms and ranks were very similar to those of the RAF until 1968. After a reform, the ranks were brought into line with the US and NATO systems. One reason for this was that Canada is bilingual (English & French) and it was easier to translate the rank designations into both languages. For example, the Air Chief Marshall (French: Maréchal en chef de l'Air) became simply General (French: Général).

de Havilland VAMPIRE FB.52 / *image by: Will Moore*

Boeing CF-188A HORNET / *image by: Will Moore*


Boeing CF-188A HORNET / *image by: Will Moore*

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VOTRE FORCE AÉRIENNE

McDonnell Douglas CF-188A HORNET / *image by: Robert Kysela*

The jubilee aircraft will be flown by Capt. Caleb Robert, call sign: Tango. The display is very dynamic and even the take-off is spectacular. After a short take-off run, Tango pulls up abruptly and immediately flies a roll with the landing gear extended. It is easy to see how the exhaust jets from the two General Electric F404-GE-400 turbofans "warm" the concrete of the runway. In this way, Tango not only demonstrated the HORNET's agility and ability to operate smoothly on short runways, but also provided the enthusiastic public, and above all the numerous photographers, with a great motif. In the past, such spectacular take-offs were the order of the day at airshows - nowadays, unfortunately, many pilots start their display with a more than boring take-off that is hardly different from that of a Boeing 737 (see most Eurofighter displays)! With this in mind: Thanks to the RCAF and especially to Capt. Robert!

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Lockheed U-2S DRAGON LADY

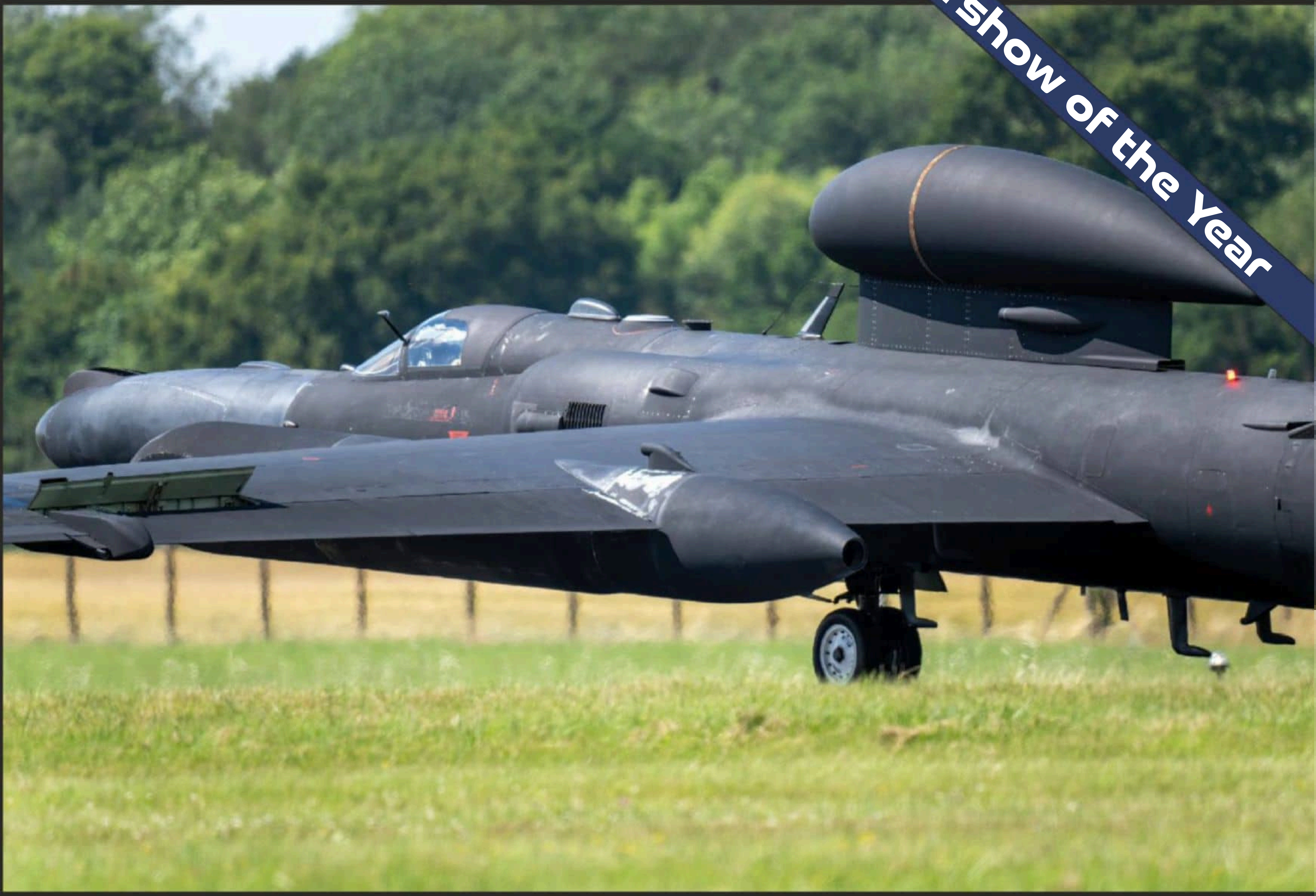
Probably the biggest surprise at this year's RIAT was the presentation of a Lockheed U-2S DRAGON LADY from the 99th Expeditionary Reconnaissance Squadron. This squadron is based at Beale Air Force Base in California, but has been assigned to RAF Fairford since 2019. From there, they fly continuous reconnaissance missions, often lasting up to ten hours, which puts a strain on the pilots in their special suits and cramped cockpits. But more of that later. Not only does the U-2 have a very long history, but it is still shrouded in mystery. After being declared dead several times, the end of its career finally seems to be in sight. According to the latest information, this icon will be retired from the USAF by 2027 at the latest. So the presentation at RIAT was special in more ways than one.

The DRAGON LADY is essentially a glider with a powerful jet turbine and large fuel tanks. It may sound strange, but the U-2 is designed to fly - literally! Landing is not its strong point, which is helped by the special landing gear, which consists of a central two-wheeled main landing gear and a smaller rear landing gear. The original plan was to use a jettisonable trolley like that of the Messerschmitt Me 163A KOMET or the early variants of the Arado Ar 234A BLITZ. However, this was abandoned in favour of a kind of emergency solution which made every landing with a U-2 a tricky affair for the pilot. For this reason, a unique landing procedure was developed. In the final phase of the approach, an experienced U-2 pilot drives behind the landing aircraft in a fast vehicle (either a Dodge Charger or a Chevrolet Camaro SS) to give instructions to the pilot. In order to get the plane on the ground at all, the pilot has to "starve" the plane, i.e. reduce speed until the U-2 stalls and virtually crashes. If this happens at a height of 2 feet (!), which is only 60 cm, then all is well, at least in terms of height. In addition, the U-2 is very sensitive to crosswinds, so the pilot (and his colleague in the chase car) must also make sure that the aircraft is aligned straight with the runway. Once the U-2 has landed safely (and rolled out at the end of the runway), a waiting maintenance crew attaches the removable support wheels to the wings so that the aircraft can roll back into its parking position. These are called "pogos" and are removed from the aircraft during take-off.

The chase pilot, known as the "mobile", is also the backup pilot for the mission, i.e. he goes through exactly the same preparation process as the intended mission pilot. At Fairford, spectators were able to see two simulated approaches and a landing under real conditions, including the chase car. The only difference from a mission flight was that the pilot did not wear the special suit and pressurised helmet during his demo.

At exactly 0730 CET (0630 Zulu) another U-2S took off on a regular reconnaissance flight and returned to RAF Fairford at 1606 CET (1506 Zulu) after a flight time of just over 8.5 hours. In purely mathematical terms, at a cruising speed of about 700 km/h, it covered a distance of about 5500 km. To the delight of the spectators, DRAGON LADY also landed. The mission aircraft carried an appropriate sensor package, clearly recognisable by the extended nose section (this contains an ASARS-2A radar and can be exchanged for another nose section depending on the mission profile) and the SENIOR SPAN satellite data link system, which is mounted in a voluminous container on the top of the U-2S fuselage.

Lockheed U-2S DRAGON LADY / image by: Will Moore



Lockheed U-2S DRAGON LADY with Data Link container on the back of the fuselage / image by: Robert Kysela

The development of the U-2 dates back to the early 1950s, when the US government realised that, despite its best efforts, it had been unable to establish a functioning network of agents in the Soviet Union to gather vital intelligence on the effectiveness of the Red Army and, above all, the Soviets' nuclear capabilities. The only way to break through the "Iron Curtain", as Winston Churchill called the Soviet Union and its satellites, and look behind the scenes was to use high-flying reconnaissance aircraft over the territory of the USSR. At the time, the USAF had no aircraft capable of operating safely at high altitude without being shot down, so a competition was held among companies such as Fairchild, Martin and Bell to develop such an aircraft in the strictest secrecy. The tender was won by the Martin Aircraft Company with a modified licensed version of the British English Electric CANBERRA and the designation RB-57D. Although this was intended as a temporary solution, the USAF was satisfied for the time being. Lockheed, although not part of the competition, was working independently under the direction of legendary chief designer Clarence "Kelly" Johnson to design a long-range strategic reconnaissance aircraft. Johnson used Lockheed's latest fighter, the F-104 STARFIGHTER. Parts of the F-104, especially the fuselage section, served as the basis for the High Altitude Reconnaissance aircraft. This was the beginning of one of the most fascinating reconnaissance aircraft in aviation history - the U-2 DRAGON LADY! However, as the USAF had already awarded the contract to Martin, Lockheed needed an institution interested in the new aircraft and able to finance it. That institution was the CIA! And the rest is history!

Lockheed U-2S DRAGON LADY / *image by: Robert Kysela*

The current version of this reconnaissance aircraft (U-2S) differs in almost every respect from the early variants that became famous for their missions over the territory of the USSR or during the Cuban Missile Crisis. While the first production aircraft (U-2A) was powered by a Pratt & Whitney J-57-P31 turbofan (a version of this engine was also used in the Boeing B-52 STRATOFORTRESS and the North American F-100 SUPER SABRE), later versions (from the U-2C to the U-2R) were equipped with the more powerful J-75-P13A. The U-2S is powered by a General Electric F118-GE-101 turbofan engine with a thrust of 75.62 kN (17,000 lbs). As part of the Block 10 upgrade, the on-board electrical system was replaced with fibre optic technology, which drastically reduces the electronic signature (important for the use of a so-called passive radar).

The U-2 was never built in large numbers and was never intended for export. Nevertheless, there were a number of versions that always reflected the state of the art. Not only was the reconnaissance and sensor technology modernised, but the aircraft itself was also developed further. Not only did the U-2S have a more powerful and efficient engine, but the cockpit was completely redesigned and equipped with multi-function displays (MFTs). The fuel capacity of the first versions was 1335 gallons (5059 litres). This gave a range of 3000 nmi. With the U-2R version, two additional fuel tanks were installed in the wings, increasing the fuel capacity to 2915 gallons (10047 lt) and the range to 5430 nmi (10060 km). The operating altitude of the U-2 was 70000 feet (21340 m). Because of this high altitude, the pilot is forced to wear a pressure suit, otherwise he would not survive a depressurisation in the cockpit or an ejection with the ejection seat. The model currently in use is David Clark's S1034. This suit also protects the pilot from the extremely low temperatures at this altitude (below -55° Celsius).

Boeing F-15QA ABABIL / image by: Robert Kysela

Boeing F-15QA ABABIL

It is difficult to talk about the highlights of RIAT 2024 - there were just too many! One of the highlights that many expected to see was the demonstration of a Boeing F-15QA ABABIL from the Qatari Air Force, flown by two Boeing test pilots. To see a Boeing F-15 at an airshow is something special, especially as there are few operators of the EAGLE outside the USA, so the displays are not often seen in Europe. While the display is loud and the aircraft is very attractive, it is not very dynamic compared to modern high-end fourth and fifth generation fighters. This has all changed with the latest version of the EAGLE. Equipped with two powerful General Electric F110-GE-129 engines with a thrust of 129 kN (29,000 lbs) each and a modern digital fly-by-wire system, the F-15QA is able to perform flight manoeuvres that are more familiar from Russian high-performance jets. These manoeuvres are particularly spectacular at air shows, but give an idea of the aircraft's potential.

Unlike the General Dynamics F-16 FIGHTING FALCON, the larger McDonnell Douglas F-15 EAGLE did not become an export hit. This was partly due to the fact that the USA had to overcome many hurdles to procure the F-15 and did not really want to make the F-15 technology available to all air forces. As a result, the Eagle was only offered to the USA's most reliable partners, such as Israel, South Korea and Saudi Arabia. The other reason, of course, was the high price. Since its official introduction in 1974, the F-15 has been developed and subjected to various combat improvement programmes. In 1979 the first programme called "Production Eagle Package 2000" was carried out, which finally resulted in the F-15C/D version. Since then, numerous smaller modernisation programmes have been carried out to maintain combat capability. All these measures had one thing in common: they only concerned avionics, weapons and to some extent engines. The latter compensated for the increased weight, but did little to improve the aircraft's performance.

Although the McDonnell Douglas F-15 Eagle was designed to be a fighter-bomber from the outset, and even had the necessary wiring built in, the USAF didn't really want to hear about it. There were many reasons for this, one of which was that the USAF did not consider it "glorious" to use their "best fighter" as a fighter-bomber. Despite this, McDonnell Douglas worked hard to develop a multi-role fighter, which eventually paid off. When the USAF was looking for a replacement for the General Dynamics F-111 AARDVARK, McDonnell Douglas was able to present a finished concept that convinced the Air Force and the US Congress. In addition, some USAF decision-makers had serious doubts about the Lockheed Martin F-117 NIGHTHAWK concept, which was still under development at the time.

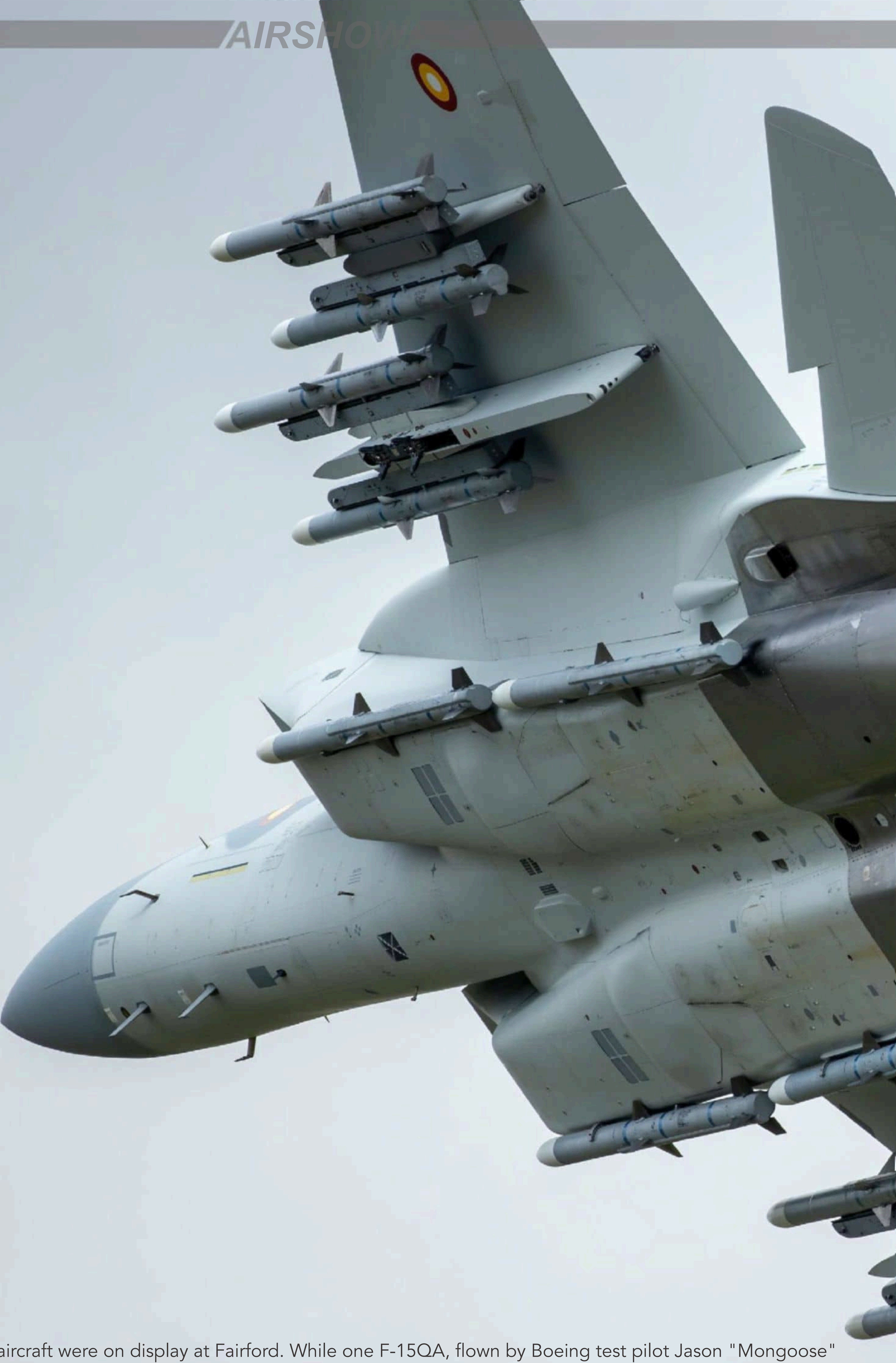
The new fighter-bomber, designated the F-15E STRIKE EAGLE, was based on the two-seat F-15D version, but was a new design in many respects. The airframe had to be significantly reinforced, the cockpit was completely redesigned and great emphasis was placed on the survivability of the aircraft and crew, including the installation of fireproof materials. This is also necessary. In contrast to the fighter version, which operates at high altitudes and over long distances (BVR), the STRIKE EAGLE is designed to operate close to the ground (in low-level flight) over enemy territory. A striking external feature of the F-15E is the Conformal Fuel Tanks (CFT) mounted on the side of the air intakes. The F-15E STRIKE EAGLE provides the USAF with one of the most capable multi-role fighters produced in the West.

The first F-15E was delivered to the USAF in April 1988. This means that many aircraft are now over 30 years old and urgently need to be replaced. This also applies to most of the F-15C/Ds. In addition, the designated successor to the Boeing F-15 EAGLE (Boeing took over McDonnell Douglas in 1997), the Lockheed Martin F-22 RAPTOR, has neither been purchased in large numbers nor developed in any way and will therefore also have to be retired in the foreseeable future. This is, of course, a major dilemma for the US Air Force. Instead of developing a new aircraft from scratch, the US Air Force decided to take an existing and proven concept and completely redesign it to create a fighter that will be the backbone of the US Air Force for the next 20 to 30 years - the Boeing F-15EX EAGLE II.

The Qatar Emiri Air Force is the latest customer for the F-15. In June 2017, the Qatari government ordered 36 aircraft, and in October 2023 a further twelve were ordered. However, the Qataris did not want to buy an outdated version of the F-15, but a state-of-the-art fighter with the latest avionics, a glass cockpit, a modern digital fly-by-wire system and the most powerful engines available. The result is the F-15QA ABABIL, which in turn served as the basis for the development of the Boeing F-15EX EAGLE II. The EAGLE II, also known as the ADVANCED EAGLE, is identical to the F-15QA in terms of performance, and the two versions differ only slightly in terms of equipment. It is therefore not surprising that Boeing has used the F-15QA as an advertising medium at various high-profile events such as Dubai (2023), Fairford and Farnborough.

With the F-15EX EAGLE II, Boeing is in direct competition with its own F/A-18F SUPER HORNET. This is less of an issue in the US, where potential customers are clearly divided between the US Navy (F/A-18F) and the US Air Force (F-15EX), but has a different significance on the international market. Both aircraft have a similar mission profile. Due to the available performance parameters (at least on paper), the F-15EX has a certain advantage in almost all areas, so that ultimately the price will decide whether a buyer chooses the F-15EX or the F/A-18F. A new F-15EX currently costs $97 million, while the fly-away price for an F/A-18F is currently around $72 million!

Boeing F-15QA ABABIL / image b: *Robert Kysela*



Boeing F-15QA ABABIL / *image by: Will Moore*

Two F-15QA aircraft were on display at Fairford. While one F-15QA, flown by Boeing test pilot Jason "Mongoose" Dotter with Kevin "Claw" Tinsley as Weapons Systems Officer (WSO) in the back seat, was flown in "clean configuration", i.e. without external loads, the second aircraft had twelve AIM-120 AMRAAM dummies mounted on the underwing hardpoints and four pylons on the fuselage. The second F-15QA was flown by Matt "Phat" Giese at the controls and Michael "Houdini" Quintini as WSO. The demonstrations took place one after the other so that the audience could see that there is virtually no difference in the performance of the aircraft whether it is fully loaded or not. Matt Giese was also at the controls for the QA's maiden flight on 15 April 2020.

Lockheed Martin F-35B LIGHTNING II / *image by: Robert Kysela*

McDonnell Douglas EAV-8B MATADOR / *image by: Robert Kysela*

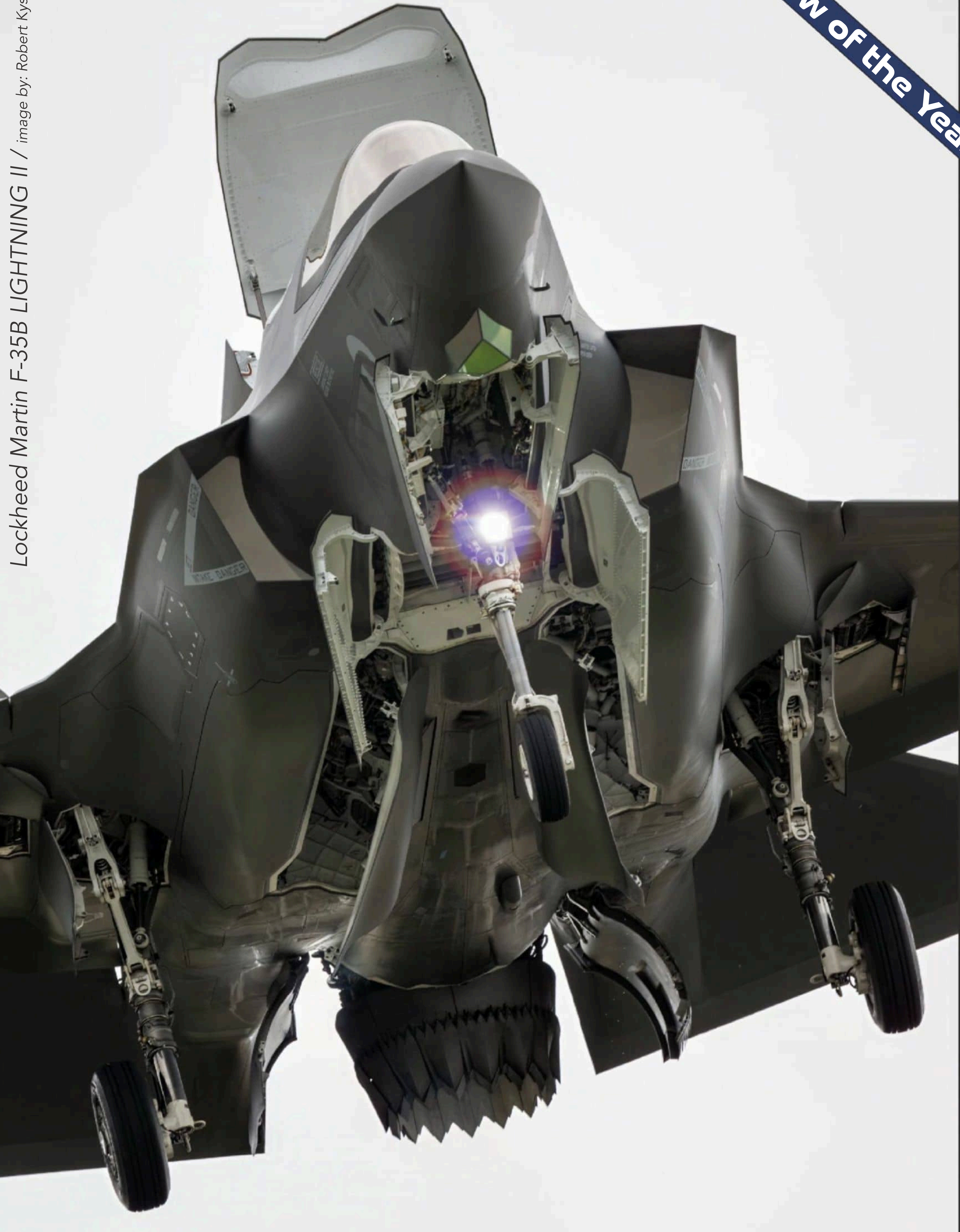
McDonnell Douglas EAV-8B MATADOR / *image by: Robert Kysela*

Vertical take-off aircraft

In the early 1960s, NATO's military planners realised that in the event of a war with the Warsaw Pact, the enemy would launch a massive first strike, deliberately destroying the infrastructure of NATO countries in the first hours of the attack. In addition to supply lines, communications and command centres, all airfields would be prime targets. Today, planes and helicopters can be protected to some extent (e.g. by being placed in a safe shelter or even a bunker, or simply by being in the air during the attack), but if the runway is permanently destroyed, this becomes difficult. For this reason, many nations have also designated certain stretches of motorway and road for emergency use by fighter aircraft, but these are also known to the enemy.

The solution to this problem is to get rid of long (and especially straight) runways altogether. But this requires a type of aircraft that does not need runways - the vertical take-off aircraft. At the time, European aircraft manufacturers in particular were working flat out to develop a fully-fledged combat aircraft that could either take off and land vertically (VTOL) or use a very short runway. Interestingly, only one western aircraft made it to series production, the Hawker Siddeley (later BAe) HARRIER. It was based on the Hawker P.1127 test aircraft, which made its maiden flight in October 1960. A special feature of the HARRIER is its single PEGASUS turbofan engine, originally developed by Bristol Siddeley. In addition to two pivoting (hot) exhaust jets on the sides, it has two additional bleed air jets in the front compressor area. This meant that the HARRIER could not only land vertically, but also fly sideways and backwards. The "Jump Jet", as the HARRIER was often called, has been in service with the Royal Air Force since 1969. The naval version, the SEA HARRIER FRS.1, followed in 1978. Since then, this icon of British aviation has been a fixture at almost every airshow in the UK - until 2010, when the vertical take-off aircraft came to an abrupt end.

The BAe HARRIER could take off and land vertically with a light payload, but needed a bit of 'run time' with a full payload. The HARRIER's main weakness was its short range, which was one of the main reasons why it was withdrawn from service by the RAF. Nevertheless, the concept and advantages of a vertical take-off aircraft are still very appealing to the British, which explains why the UK has chosen the V/STOL version of the Lockheed Martin F-35B LIGHTING II. This will be used on the UK's new QUEEN ELIZABETH class aircraft carriers, as well as by the RAF's land-based units. All F-35Bs delivered to date (48 units) are currently based at RAF Marham, where they are split between No.207 Sqn and 617 Sqn (the famous Dambusters). It is to the credit of the RIAT organisers that they have managed to have a classic HARRIER and its designated successor, the Lockheed Martin F-35B LIGHTNING II, together in the flying programme!



Lockheed Martin F-35B LIGHTNING II / *image by: Robert Kysela*

Spanish Bullfighter

The HARRIER on display at Fairford is actually an EAV-8B MATADOR built by McDonnell Douglas for the Spanish Navy. In the mid-1970s, the American company was given the opportunity to produce the British vertical take-off aircraft under licence. While the first variant, designated the AV-8A, was very similar to its British counterpart, McDonnell Douglas began making several improvements to the successor, the AV-8B, based on requirements from the US Marine Corps. These included increased combat power, improved avionics, a raised cockpit for better pilot visibility, and increased range. This version is also known as the HARRIER II.

ARMADA
01-926

McDonnell Douglas EV-8C MATADOR / *image by: Robert Kysela*

VA.1B-38
9ª ESCUADRILLA
AIR TATTOO

In addition to the US Marine Corps and the Italian Navy, the Spanish ARMADA (Navy) also has twelve aircraft of this type, which serve on the Spanish aircraft carrier JUAN CARLOS I. A special feature of the HARRIER II is the high use of GRP components in its wings and rudders. As Spain has not yet decided to purchase F-35B LIGHTNING IIs for its armed forces, the Spanish HARRIERs will fortunately remain in service for some time to come - in any case, it was a pleasure to see a "jump jet" in action again!

BAe HAWK Mk.66/ *image by: Robert Kysela*

Aerobatic Teams

All Air Tattoos in the past have also been characterised by the fact that there has always been something special to offer in terms of aerobatic teams. Everyone understands that this is particularly difficult - after all, there are not many aerobatic teams. It goes without saying that the RAF RED ARROWS are from the UK. One or two teams from the European aerobatic scene, such as the PATROUILLE SUISSE, are also often invited. However, the organisers always keep an eye on whether the team in question is celebrating an anniversary or fits in with the current framework in some way. In other words, you don't just invite people and then be happy if a team happens to accept. This premise has also been implemented at RIAT 2024. While the PATROUILLE SUISSE celebrated its anniversary (as did the RAF RED ARROWS), another team had no anniversary to celebrate, but reflected the very strong presence of Arab participants who enriched this year's Air Tattoo. The official aerobatic team of the Royal Saudi Air Force, the SAUDI HAWKS, were the absolute highlight of each show day. With their BAe HAWK Mk.65, the Saudis put on a fantastic and very dynamic display, proving that they are one of the top

www.patrouille-suisse.ch

PATROUILLE SUISSE / *image by: Will Moore* teams in the genre. Although the SAUDI HAWKS were initially supported by their RED ARROWS counterparts, they have now developed their own programme with exciting manoeuvres that you won't see from any other team.

The BAe HAWK is also flown by the Finnish MIDNIGHT HAWKS. Finland ordered 50 BAe HAWK Mk.51 to replace its ageing Fouga CM.170 MAGISTERs and Mikoyan & Gurevich MiG-15UTI trainers (1977). This number was supplemented by 18 second-hand aircraft (BAe HAWK Mk.66) acquired by Finland from Switzerland in 2007. The Swiss aircraft all had low flight hours and were otherwise in excellent condition. This allowed Finland to retire some of its older aircraft. The livery of the Swiss aircraft was retained, only the national insignia was replaced by Finnish cockades. The MIDNIGHT HAWKS display and the Solo display were a special treat for the Swiss spectators, especially as the Solo display was flown by an ex-Swiss aircraft and three aircraft in white and red livery were also seen in formation. The Finnish Ilmavoimat (Air Force) will continue to operate its BAe HAWKs well beyond 2030. All BAe HAWKs are based at Tikkakoski AB and belong to the 41 Fighter Squadron (HävLLv 41).

60
Diamond Season
XX3
ROYAL

RAF RED ARROWS / *image by: Robert Kysela*

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SAUDI HAWKS / *image by: Robert Kysela*

Airshow of the Year

I don't think it needs any further explanation why our editorial team unanimously voted RIAT 2024 as the AIRSHOW OF THE YEAR. For years there hasn't been an event that has presented so many highlights. It almost goes without saying that the whole thing was perfectly organised. The friendliness with which the visitors were received, from the car park attendants to the staff at the entrance and at the security checkpoints, as well as the numerous helpers, is particularly positive. Nothing was left to chance in the organisation, everything was perfectly planned and executed. Of course, there is a lot of work behind the scenes. A whole year's preparation and many years of experience pay off here. Also for these reasons the ROYAL INTERNATIONAL AIR TATTOO more than deserves our award!

We are already looking forward to the next RIAT, which will take place from 18 to 20 July 2025.

Robert Kysela

Dutch F-16 **FAIRWELL** 2024

Interview: Lt.Gen. André Steur

Lockheed Martin F-16AM FIGHTING FALCON / image by: Joris van Boven

In September 2024, the Royal Netherlands Air Force will finally bid farewell to its beloved General Dynamics F-16 Fighting Falcon. The aircraft has been the backbone of the Dutch Air Force for more than 45 years and is very popular with both defence personnel and aviation enthusiasts. Together with Lieutenant General and Commander of the Royal Netherlands Air Force, André Steur, we look back on the career of this iconic fighter in Dutch service. It was "the" aircraft that was also a recurrent theme in his entire career as a fighter pilot.

story & images by: Joris van Boven & Alex van Noye

Interview with Lt.Gen. André Steur

André Steur (call sign "Jabba") does not hide the fact that the Lockheed Martin F-16 FIGHTING FALCON played an important role in his life. He even met his American wife thanks to the F-16 during his training in the United States. But let's let him tell the story himself:

I joined the Royal Netherlands Air Force (Koninkljke Luchtmacht) in 1988, and that was not a matter of course. When I was about six years old, I had some Leopard stickers on the footboard of my bed because my father was in the army. Above my head was a poster of the two naval guided missile frigates, the HNLMS Tromp and the HNLMS De Ruyter, and on my shelf was the red, white and blue prototype of the F-16. So somewhere, as a child, something was triggered that made me interested in defence in the broadest sense. It certainly had something to do with my father. When I was about seventeen years old, I was in pre-university education (VWO) and I had to think about what I was going to do in the future. The most popular thing at the time was to study business administration. You could earn a good living, so at first it seemed like a good idea. But after a while I realised I didn't really like it. Time for a chat with my father. Old Steur asked me some deep and critical questions, and it was during this conversation that I discovered that defence might be a much better fit; working with and in a team, doing meaningful work, seeing something of the world, doing something for someone else, and having fun in and out of work. Shortly after the talk, I applied to join the Army. It was a logical step, after all I saw that beautiful green suit coming home from my dad's every day. The last step in the interview process was the Advisory Committee. An erudite body chaired by a Brigadier

Lieutenant General André Steur / image by: Alex van Noye

General of the Infantry, General Knol. After an excellent interview with the committee, in which I was grilled about mechanised operations and combined arms combat, I was accepted for the cavalry, my first choice.

But as soon as I walked out the door of that room, I was whistled back by Knol: "Steur, come back, because there's one thing we don't understand in your file. You only applied to the army and not to the navy, and not to the air force either, whereas most of our applicants say they applied to the air force because they wanted to be `Tom Cruise´ (Top Gun had just come out the year before)". And so General Knol advised me to take a look at the Air Force. And so I did. Immediately after that I applied to the Air Force and was accepted. So that's how I ended up in the Air Force. A good example of thinking purple avant la lettre. Yes, and then the adventure began!

What struck me immediately when I joined the Air Force, and indeed throughout my training, was the professionalism and discipline that prevailed everywhere. Long days, hard work and lots of learning at a murderous pace. No excuses, no sweet-talking, just making sure your affairs are in order and giving it your all every day. Whether it was in the academy, in the simulator or in the air. You see a tremendous drive and professionalism in everyone to do things well, to do them safely and to get a little better every day. To be the best, as a team. That really impressed me.

In the beginning, of course, you come from high school and discipline is a word in the 'Dikke van Dale' (the Dutch national dictionary). Suddenly you end up in a system where everything is arranged, but at the same time a lot is demanded of you as an individual with limited time for a little personal attention and wishes. You are in this system with fixed deadlines for tests and examinations. This requires the individual to be able to adapt to such a system. By subordinating oneself to the greater whole, by giving the best of oneself. Because it is hard work, you can see that an enormously strong group cohesion is created, wanting to help each other and pulling each other along. Keeping your eye on the ball, always knowing that you have to do it together and, of course, relaxing together. Weekends and Friday nights at the Officers' Club have always been good times. Important for the team; work hard, relax hard, together.

official crest: Koninklijke Luchtmacht

Lockheed Martin F-16AM / image by: Joris van Boven

Group Dynamic in F-16 Squadrons

When I look at the squadrons of the Royal Netherlands Air Force, what I appreciate most is the group dynamic. When it comes to working together, the whole aviation industry in general, and fighter pilots in particular, is sometimes perceived by outsiders as a very tough world. This is partly because people tend to be very direct with each other and say what they think. In the end, it is the result of the team that counts. The realisation that you have to work together to get a little better every day, to take the team to a higher level, is very normal in the squadrons. It is not so much who or what you are that counts, but you are judged on your recent performance. In plain words.

I can really enjoy the fact that when I walk into the squadron to fly the F-16, no matter what is on my shoulder, it is not my rank that counts, not Lieutenant General Steur, but number 1, 2, 3 or 4 in the formation, with all the tasks and responsibilities that go with it. Very simple. After the flight, the lieutenant in charge of the debriefing gives me a good talking to if I didn't do things right. Wonderful, no mincing of words, 'no points for second best'. I think we really need to appreciate that, that we always tell each other the truth. What happened? How do we learn from this? How can we avoid making the same mistake tomorrow? How can we work better as a team? For me, that's the basis of any high-performance team. Blind trust in each other, I think that's inevitable when you're in this business.

Everyone has to fulfil their responsibilities, on the ground and in the air, to make Airpower successful. You really have to stick to contracts and agreements. I have always found it very special that in the language of fighter pilots there are no questions. It's just commands back and forth. When the Flight Leader gives you an order, you simply carry it out. You know what he wants you to do, and only if you think the formation's chances of survival are at stake can you make a call, even as number 4. But even then you don't ask if we should do this or that, there's no time for that, you just direct the formation. I find that very special because I think it is the only language in the world where there are no questions. A mission where the Dutch F-16 really made a difference in an international coalition was, of course, the intervention in the war in the former Yugoslavia at the end of the 1990s. Operation Allied Force, the first conflict in which the Royal Netherlands Air Force took the lead, carried out the most risky and complex missions and was responsible for a large part of the operations. Many important moments that took place at that time are are still fresh in the memories of many civilians and military personnel. The transition from day to night, the use of long-range air-to-air weapons, and all this while we had only just converted to the F-16 MLU (Mid Life Update). An unprecedented achievement in which we matured rapidly as a community and our people really made a difference in executing the operations in a more than excellent but also safe manner. A huge compliment. The combination of a much better weapon system and an even more professional team brought the Royal Netherlands Air Force to the forefront of the Alliance in this conflict during an international intervention in a crisis. A promotion to the Champions League of combat operations.

This was unprecedented for a country like the Netherlands and the first time in a very long time. A culmination of a quest for perfection, discipline, teamwork and blind trust in each other, both with our ground crews and our air crews. An unprecedented focus on improving and being the best. That is what ultimately made the difference. I think that this way of thinking and working is transferred to the field and people see the great added value of such aspects. I myself started in Bosnia and ended up in Kosovo with the Allied Force and later in Afghanistan. During my deployments to Bosnia, Kosovo, Afghanistan and Libya, I have seen the strength of the team at work in some very exciting times. That is why I am convinced, and of course I am biased, that the Airpower Team is one of the most powerful teams in the world. And I see that in all the weapon systems of the Air Force.

I think there is nothing stronger than that mutual bond, that blind trust, that discipline and that focus on a mission outcome! It humbles you as a human being. And again, it is not just the pilots who are responsible for this, but the whole team. The best thing about a mission like this is a fully functioning squadron, which is usually somewhere between 120 and 250 people. And believe me, everyone in the squad knows that if anyone 'screws up', the team fails in the broadest sense of the word. Of course, you often see the media focus on the aircraft and the fighter pilots, but that does not do justice to the strength of the whole squad. When the team works seamlessly together in the air and on the ground, the sky is the limit. We as an Air Force must continue to value this.

F-16
Fighting Falcon

Lockheed Martin F-16AM / image by: Joris van Boven

Lockheed Martin F-16AM / image by: Joris van Boven

Lockheed Martin F-16AM / image by: Joris van Boven

From Lightweight Fighter to Multi-Role Aircraft

Personally, I also see that we have continued to improve the functioning of the team. Over the years I have seen a real professionalization in the F-16 community. Partly due to the increasingly broad task assignment and the increasing complexity of the missions with the aircraft. When I joined the 312 Squadron as a young wingman, we flew with a fairly basic version of the F-16. Dumb bombs, a cannon and short-range missiles. That was it, life as an F-16 pilot was actually very clear at that time. If I then compare that with what was later asked of our pilots above the Balkans, in Afghanistan and in the Middle East, then it is a world of difference. The MLU (Mid Life Update) version of the F-16 has been a real game-changer for the entire Royal Netherlands Air Force in that sense. When I saw our people flying missions in the Middle East with the F-16 MLU, with good sensors, smart weapons, mixed weapon packages and sometimes ten different attack profiles, it became clear to me that the responsibility of the pilot has become much greater over the years. The required knowledge and skills, the increasingly stringent rules of engagement, the very long missions, the mainly operating in the dark… we ask quite a lot of our people. And for decades they made it happen, at the highest level. I am incredibly proud of that! The arrival of the MLU F-16 at the time was certainly an important prelude to the F-35.

Lockheed Martin F-16AM / image by: Joris van Boven

MLU is Standardisation

I believe that the operations with the F-16AM (MLU) have positioned the Royal Netherlands Air Force as one of the world's leading fighter forces. This is due to a number of factors. The professionalism of the crews on the ground and in the air, of course, but also the cooperation with other countries. This is an important lesson not only for the Royal Netherlands Air Force, but also for the other EPAF (European Participating Air Forces) F-16 countries. When you buy the same equipment and use the same doctrine and tactics, there is a lot of synergy in operations. The Netherlands has played a very important role in this area. A dominant and leading air force in the international context. Among other things, by setting up the FWIT (Fighter Weapon Instructor Training), you could say the Top Gun of the Low Lands, but better and without volleyball. Not the brainchild of a bunch of generals, by the way, but of captains and majors who saw that everything could be smarter, better and more effective. It had to be done, and so it was that the air forces of the Netherlands, Norway, Denmark and Belgium gradually grew closer together. The same equipment, the same language, the same philosophy, the same standards, the same tactics, the same leadership, the same support, truly 'One Team One Task'! To train weapons instructors who, when they returned home, would form the tactical backbone of their own squadrons. I flew on the FWIT, where I was a Dutchman in a Belgian aircraft with a Norwegian crew chief and a Danish weapons technician, with a Dutch engine in the back of the aircraft. We did everything together. And the great thing is that when we had to fly together, there were no questions.

When we went to Afghanistan with the Danes and the Norwegians, we literally did everything together. And the great thing is that when we had to work together, there were no questions. When we went to Afghanistan with the Danes and the Norwegians, we literally did everything together. The same with our Belgian colleagues over the Balkans. This synergy was an unprecedented force that was released. The fact that you do everything the same way and that when you meet in the air you can switch immediately if the situation requires it is also worth its weight in gold. No questions or discussions on the radio. This concept has really put the Netherlands on the map and this would

Lockheed Martin F-16AM (MLU)

image by : Joris van Boven

not have been possible without the extremely professional efforts of our crews. That is why we are one of the leading air forces in the world and, I dare say, one of the best trained.

The fact that we, the Royal Netherlands Air Force, have achieved this integration and cooperation with other NATO partners in Europe and far beyond is a great achievement for a small country like the Netherlands. So I am very proud of our people. Who could have imagined that we would be in service with this 'Lightweight Fighter' for decades? It is undoubtedly the most widely used weapon system in the entire Dutch defence organisation. It started cautiously in Bosnia with the first patrols with the original version of the F-16, followed by more and more complex operations with an improved version of the F-16AM. A wonderful evolution of crews and equipment. A little better every day, it is the workhorse of defence. It is great that this 'spiral evolution' has ultimately formed the basis for the development of the F-35. So that we always have the best aircraft, both software and hardware.

Farewell F-16 / *image by: Joris van Boven*

ROSS-SYSTEM
173.685.138

Lt. Gen. André Steur / *image by: Joris van Boven*

The people behind the F-16

After the conflict in former Yugoslavia, the world was to change drastically again on 11 September 2001. After 9/11, the world would face an uncertain time in the fight against terrorism. Again, the Air Force had to adapt to the changing dynamics. Change as a standard, adaptability as a starting point, this is what characterises the Air Force and its people. And this is necessary because we do not do everything for ourselves. Almost everything we do is in support of either the Navy or the Army. You have seen this come to the fore in the conflict in Afghanistan, for example. It was evident in the number of deployments that were made to relieve our own troops on the ground in a very precarious situation. This came to the fore during the Afghanistan mission, and you can still see the very good relationships that have developed as a result. These relationships are often between pilots and commandos. Again, the F-16 played a very important role, sometimes making the difference between life and death. And, of course, it is not just the F-16s that have made a difference - our Apache helicopters have also made a difference. At the height of the Royal Netherlands Air Force's involvement in Afghanistan, I was in America on a Block 50 Viper in South Carolina, so I did not experience this personally. But I am proud of the cooperation between the different services there and of the situations in which people on the ground owe their lives to the use of our F-16s, among other things. It is certainly these people who have written the book of the F-16 over the years.

The most intense mission I experienced as a pilot was during Operation Allied Force. It was also my first time using weapons. It was special that we were not so far away from home in Italy. You watch the news and see all the horrors that are going on over there, the rapes, all the atrocities against the local population in Kosovo. It affects you as a person, you want to do something to stop these horrors. My very first mission was with four CBU-87s, cluster weapons that we still had and were allowed to use at the time, against a whole convoy of armoured vehicles as a target. Then you realise that the terrible suffering on the ground is in the back of your mind. Then maybe the urge to get it right comes even more to the fore. The excitement of using your weapons for the first time does something to you as a fighter pilot. And if everything goes well, it is actually a very special experience that stays with you forever. The feeling that you have made a difference to the people on the ground is motivating. You want to prevent more suffering. Also, when you fly past the convoy an hour later and see the smoke billowing from the vehicles, you realise that there are people inside. People who are fathers, brothers and sons. War is a dirty business and it is never pretty. Every soldier knows that very well. We must always try to prevent such atrocities from happening, but we must also be ready if they do. We must be able to resist, and deterrence is an important part of that. Speak softly and carry a big stick

Lockheed Martin F-16AM / *image by: Joris van Boven*

Lockheed Martin F-16AM / *image by: Joris van Boven*

Lockheed Martin F-16AM / *image by: Joris van Boven*

Defense as a Company

How do we as human beings deal with war and conflict in general? We have learned that over the years. Certainly because colleagues sometimes had a hard time, experienced problems and started to think when they came home. Fortunately, the Ministry of Defence and the Air Force were quick to set up some kind of aftercare. One of the things we did was not to send people home to their families immediately after the war and leave them to their fate. No, we first talked to them as colleagues about what had happened, expressed the things that were bothering them, discussed their feelings and concerns with each other. In other words, an adaptation programme. We are still going through this process.

When we come back from an operation, it is nice that we usually spend a few days in a safe and relaxed environment halfway home, where you can have a beer and talk to each other and to psychologists. Being able to tell your story to people who really understand is important. They are also informed about the safety net and the aftercare that is

Lockheed Martin F-16AM / *Foto: Joris van Boven*

Lockheed Martin F-16AM / Foto : Joris van Boven available within the Ministry of Defence. Again, important and necessary, and we see this need in all Defence units. A deployment does not leave people cold and everyone deals with it in their own way, also when it comes to aftercare. How we deal with it is really different from person to person, but I think it helps a lot to talk to colleagues who you can share experiences with. How do you deal with it and what do you think about it? It is a very exciting job, a lot happens and it is also a very responsible job, often at a very, very young age.

It is also good that the people in the squadron can get together for a beer every now and then to let it all out. It is nice to be able to talk to someone who understands what they are talking about and what they have been through. But for some it is not enough and they need more help from talking to a professional. How do I make sense of what has happened and how do I deal with it? As an organisation, we also have a responsibility to get the aftercare right. Even after the shutdown period, it can still be difficult. Maybe even more difficult now than before. On the one hand, it is great that we all have social media and that we can face-time, app and call. When I was first deployed, you could usually call home once a week. The 'bubble' you were in was pretty closed off then, but now there is daily contact, everyone sees what is happening in the area, also through the news on the internet. Of course, this also raises concerns in the private sphere, so we have to take that into account. I think we do that very well as an air force. By involving the home front at the beginning of a mission. We tell them what is going to happen, what we expect from our people, how we have trained them. This is necessary because we expect a lot from our people, including the home front. I always say, 'We don't train the home front for this, and we don't pay them for it', but they still run the business in our absence. With enthusiasm! For the soldier it is relatively easy, I think, because he is busy with his mission. You go to the area, they cook for you, your bed is made and your only responsibility is to do your job. Life goes on at home, people get sick, fridges break down and so on. Most of my colleagues also have husbands and wives at home, with families and careers of their own. Not something to be taken for granted, but the home front is always there. I have the utmost respect for the Home Front every time!

Choice for the F-35

After many years of loyal service, the F-16 was finally due for replacement. After my assignment to Block 50 in the USA, I was posted to The Hague, where the Defense Materiel Organization, now COMMIT, was located. I was there to work in the F-16 Replacement Project Team as Head of Operations. I did that for three years, focusing on the F-35 rather than the F-16. What we saw with the F-16 was that three things really caused us to look for a replacement. One was the technical life of the aircraft, because the aircraft were starting to run out of steam. We were approaching the end of the bathtub curve. At the beginning of this curve, the teething problems play tricks on you, and then you have a very long phase where 'the aircraft does what it is supposed to do', and at the end, age and defects start to play tricks on the readiness. This is from a technical point of view, which has also made the maintenance of the F-16 quite challenging and expensive. And that also affected the economic life of the aircraft. But the most important aspect for us was the operational lifetime. We saw that the threat was increasing, particularly from Chinese and Russian weapon systems, and that the F-16 was no longer sufficient in this threat environment. We also saw that the circumstances in which the F-16 could still operate independently were becoming more and more limited. Even if you are a small air force, you have to take your responsibilities in whatever coalition and whatever threat environment, otherwise I think you have to do something else. And as a small country, we do not have the luxury of operating with many different types of aircraft. So we were looking for an all-rounder, an aircraft that could operate independently in the highest spectrum of violence on the front line. We also launched a candidate evaluation. At that time, of course, we were already involved in the project through industrial participation, but certainly also to gain knowledge about the aircraft. However, when I arrived, we had to do an additional Candidate Evaluation for political reasons. That kept me off the road for a few months. At that time we didn't set any hard criteria, but we did give potential candidates a series of tasks. With a very concrete and clear task: "This is the mission, tell us how you're going to do it with your aircraft"? We got all sorts of answers from aircraft manufacturers. And it turned out that the F-35 was by far the best match for what we wanted. I was struck by the fact that the very latest F-16 also scored very highly! So it's not surprising that the F-16 is still an excellent option for many countries.

Lockheed Martin F-35 LIGHTNING II Lockheed Martin F-16AM FIGHTING FALCON / *image by : Joris van Boven*

The latest Viper is still an incredibly powerful system with a different radar, different sensors, so again very different from the aircraft we still have in our arsenal. That is what I find so special about the F-16. How it has evolved from a light fighter designed to get up in the air quickly, fire a few short-range missiles at the horde of Russian aircraft and then land to do it a few more times in a day. What the most modern F-16s can do today is still phenomenal. But the core of what we were looking for was to be able to operate autonomously at the highest levels of force. Stealth plays an important role in most modern scenarios. In the end, the F-35 was the only candidate that met all our requirements. In the end, it is the whole package that counts. It is just like I said when the F-16 came in. We had dumb bombs, short-range missiles, one gun and few sensors. Then came the MLU, which was another huge step forward, with data links, nice situation displays, long-range weapons and smart weapons. The flying itself became less and less important. You can see this even more clearly with the F-35. Logically, it's all about the mission. Everything is focused on maximising the use of the weapons and the sensor platform. Then the flying shouldn't take up too much attention. The simplest example, but perhaps indicative of the whole concept if you compare the F-35 to the F-16, is that the F-35 provides information to the pilot rather than raw data like the F-16. For example, the F-16 has all sorts of gauges that show the status of the engine, such as temperature, pressure and so on. As a pilot you are constantly looking at that to see if the one engine you have is still working properly. The F-35 simply has a small clock on the edge of the cockpit wide IPAD, if it is green you do not need to look at anything, if it is orange and you are busy with a mission task then you can postpone any action for a while, but if it is red then you really need to do something or it will go wrong. So for stress in the cockpit, green is good. For the rest, you can concentrate on everything that not only your plane sees, hears and smells, but also what all the other planes are observing and doing, and all of that is shared with each other. Sometimes you do not even know where the information in the cockpit is coming from, but it is all there. It really is a very different world from flying the F-16, where that is not the case. When you see that in an F-16, the pilot has to really make information out of data, you see that the F-35 really delivers information that you can act on immediately.

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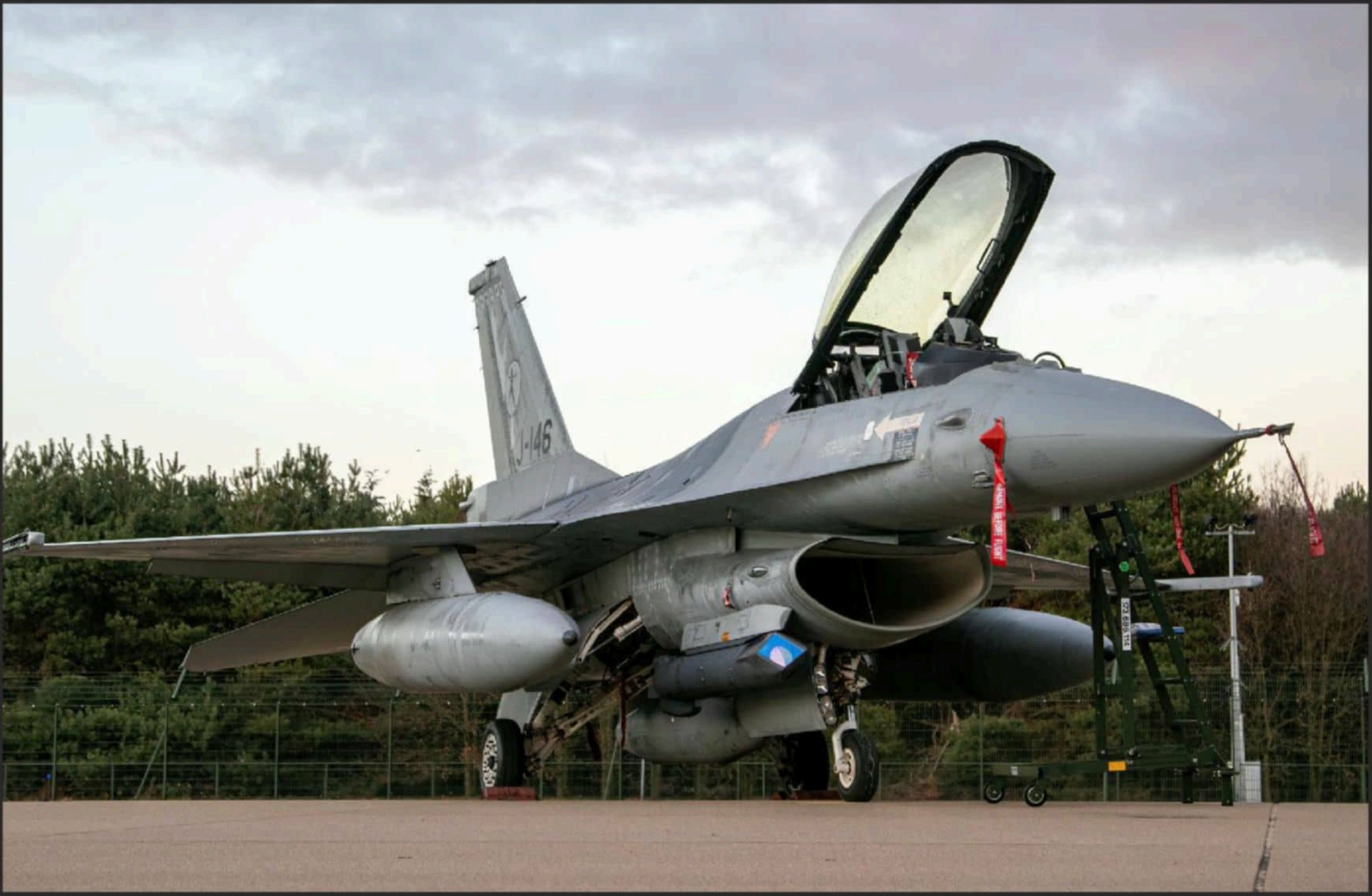
Lockheed Martin F-16AM FIGHTING FALCON / *image by: Joris van Boven*

A new type of fighter pilot

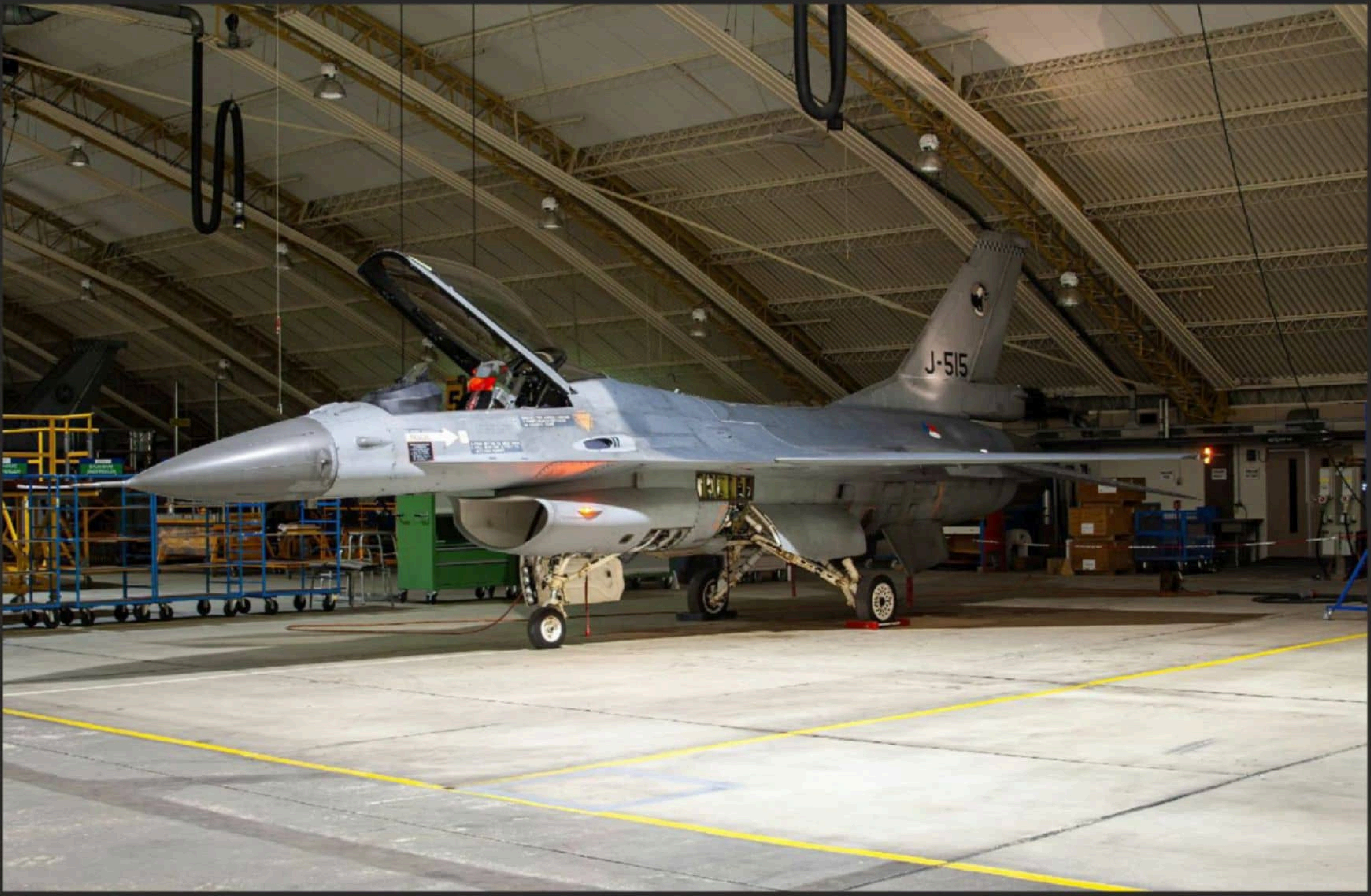
There has also been quite a bit of discussion about how we should select new pilots for the F-35. You will always see that it is a bit of an ebb and flow and that we sometimes go from one extreme to the other in our selection. I think in the past we used to look a lot more at not only the cognitive abilities of the pilots, but also whether the candidates had good hand-eye coordination and whether they had a pilot's hand. That used to be more present in a selection than it is now. Today you can see that there is much more focus on the cognitive part. You can also see this in the tasks that people do in the aircraft, flying has become a bit of a side issue. The fighter pilot today is mainly a system operator, apart from the fact that he or she has to be able to fly well. Don't get me wrong, it's about the scale of things. The task shifts, and that has to happen in an F-35. Flying an F-35 is easier than flying an F-16. But managing all those systems, including the weapons system, and being able to get the maximum potential out of the aircraft is really a whole different world. The values we discussed at the beginning are certainly still valid in the F-35 squadrons.

Again, in this tight-knit community of pilots, you want to focus on professionalism and results, and the pilots certainly want to be 'the best'. We really had to be careful not to try to do everything we did with the F-16 with the F-35. That was an issue with all the other air forces making this transition.

We need people who know how to maximise the performance of this weapon system, rather than trying to do it with all sorts of F-16 techniques and tactics. That also requires a change of mindset, out of the F-16 straitjacket. I thought it was great when we first went to the F-35 simulators in Fort Worth in America with the F-16 pilots. I was an Ops Lead in the DMO at the time, which was responsible for the introduction of the F-35. We had the discussion; "what should we do now, should we take all the weapons instructors and experienced pilots with us? Then I also said, "maybe it would be useful to take some experienced guys, but also some young guys with less than 200 hours on the F-16 to see how this works? I also thought it was funny to see some of the old guys, who were totally F-16 orientated, studying the F-35 booklets on the way and the young guys, who grew up with I-Pads and I-Phones, very quickly understanding what this aircraft could do. On the one hand it was great to see how different generations deal with this, but on the other hand it raised the question of whether the experienced F-16 pilots were the right people to shape the introduction of this platform. So I am glad that we quickly involved the younger generations in this transition.



Lockheed Martin F-16AM FIGHTING FALCON */ image by: Joris van Boven*



Lockheed Martin F-16AM FIGHTING FALCON */ image by: Joris van Boven*

Fairwell of the F-16

The introduction of new aircraft and the retirement of old ones is a timeless phenomenon in aviation. The same is true for the F-16, and it really does make a difference! A true fighter par excellence, a razor sharp knife in the air, a fighter pilot's dream as we sometimes say. And the retirement of the F-16 is, of course, closely linked to the introduction of its successor, the F-35. Of course, we could only phase out the F-16 once the F-35 had taken over all the tasks. This applies not only to the conventional role, but certainly also to the nuclear role. That was also an important benchmark in the project at the time. And as a small air force, you want to be able to operate with two different weapon systems at the same time for as short a time as possible, because we do not have an unlimited number of people to operate, maintain and repair two of these weapon systems. We have recently reached that point with the Initial Operational Capability (IOC) of the F-35. All of the F-16 missions have now been taken over by the F-35. So at the end of September we will finally say goodbye to the F-16. Its service in the Royal Netherlands Air Force will be terminated. Of course, we will continue to support the activities at the training centre in Romania with Dutch F-16s until next year, but otherwise it is over. Saying goodbye to the F-16 is of course an emotional moment for many people, not least for me. I have never flown the NF-5 Freedom Fighter or the F-104G Starfighter, so for me it has always been this beautiful Viper. For 36 years, this aircraft has been one of the main threads in my own life, taking me through everything from weapons deployments, worldwide operations, exercises and always as part of a wonderful group of people; The Airpower Team! At a moment like this, all the memories flash before your eyes, the things you have experienced, the capabilities of the aircraft, but above all, our personnel who have kept the aircraft operational for so many years, the people who have ensured that I am still sitting here telling this story. Thirty years of safe flying and a safe return home thanks to them! That really means something to me as a person.

Lockheed Martin F-16AM FIGHTING FALCON / image by : Joris van Boven

And of course, as well as being a beautiful and sexy aircraft, it was a dream to fly in. An iconic aircraft in every sense of the word. An aircraft that accidentally took to the skies for the first time fifty years ago during a test run. That was also my first experience in Tucson in America, when I climbed into that F-16 for the first time. It was certainly the third time I had flown solo in an aircraft where everything is built around you. With the canopy, you are sitting on top of the aircraft. It just gives you a powerful sense of technology and it is the nicest office to work in. So it will cost me a few tears to say goodbye to this aircraft in the Netherlands. And it is an honour for me, as Commander of the Royal Netherlands Air Force (C-LSK), to be able to take part in this special farewell.

Personally, I think a lot of people will miss this plane. Despite the critical attitude of some in the beginning, this is an unprecedented success for the Netherlands as a society in every respect. Not only when it comes to national and allied security, but what about our position in the alliance, within Europe, employment, the Netherlands as a country of knowledge, our national industry, the revenue model... Things we don't often think about, but this aircraft has paid for itself many times over. We are now seeing the same pattern again with the F-35. Just as with the introduction of the F-16, there are now critics who have often had limited exposure to the critical role this aircraft will play on the world stage for decades to come. I would love to have a cup of coffee with these people in forty years' time. It will probably be in Bronbeek, where I live, as I will be retired by then. The F-16 was an absolute top product for the Netherlands, for our own security and for the Alliance, and it will live on forever in our memories and in the stories of the people who worked with it.

From this place, I would like to thank everyone who has contributed to peace and security with the F-16 over the past decades. I am proud of you, proud of what you have achieved together, year after year!

Vipers forever!

`Jabba´

The interview with Lieutenant General Steur was conducted by Joris van Boven and Alex van Noye

Boeing CF-188A HORNET / *image by: Shawn Clish*

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VOTRE FORCE AÉRIENNE
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AIRSHOW **LONDON** 2024 **LONDON** ONTARIO

In 2024, Airshow London reaffirmed its reputation as Canada's top aviation event and one of the world's premier air shows, captivating a sold-out audience with a spectacular mix of military, vintage, and aerobatic displays. On May 8, months before the show, Airshow London was once again named the Best Air Show in North America by USA Today's 10Best Readers' Choice Awards, marking its third consecutive win. The 2024 event, hosted at London International Airport (CYXU) from September 13 to 15, featured headline performances by the Royal Canadian Air Force's 431 Demonstration Squadron Snowbirds and the CF-18 Hornet Demo Team in honour of the Royal Canadian Air Force (RCAF) Centennial. The Royal Air Force (RAF) Red Arrows also joined the celebration of the RCAF 100th Anniversary with Airshow London being the final stop of their four-show Maple Hawk 2024 Tour in Canada. Additionally, the "Falcon's Nest" display commemorated the 50th anniversary of the first flight of the Lockheed Martin F-16 Fighting Falcon, highlighted by the United States Air Force's F-16 Viper Demo Team and their striking "Heritage 50" jet, painted in the red, white, and blue of the original YF-16 prototype.

The impressive lineup of aerial and ground displays was enhanced by ideal weather, with a high-pressure system bringing clear skies and perfect conditions throughout the weekend. From the first arrival to the final departure, the show enjoyed warm but comfortable temperatures and blue skies, creating the perfect backdrop for all of the aerial performances. True to tradition, the show's location—west of Runway 15-33—offered spectators optimal lighting for photography, ensuring that every moment was beautifully captured.

Story & images: Shawn Clish

AIRSHOW LONDON PRESENTS SKY DRIVE

image by: Shawn Clish

Canadair CT-133 SILVER STAR

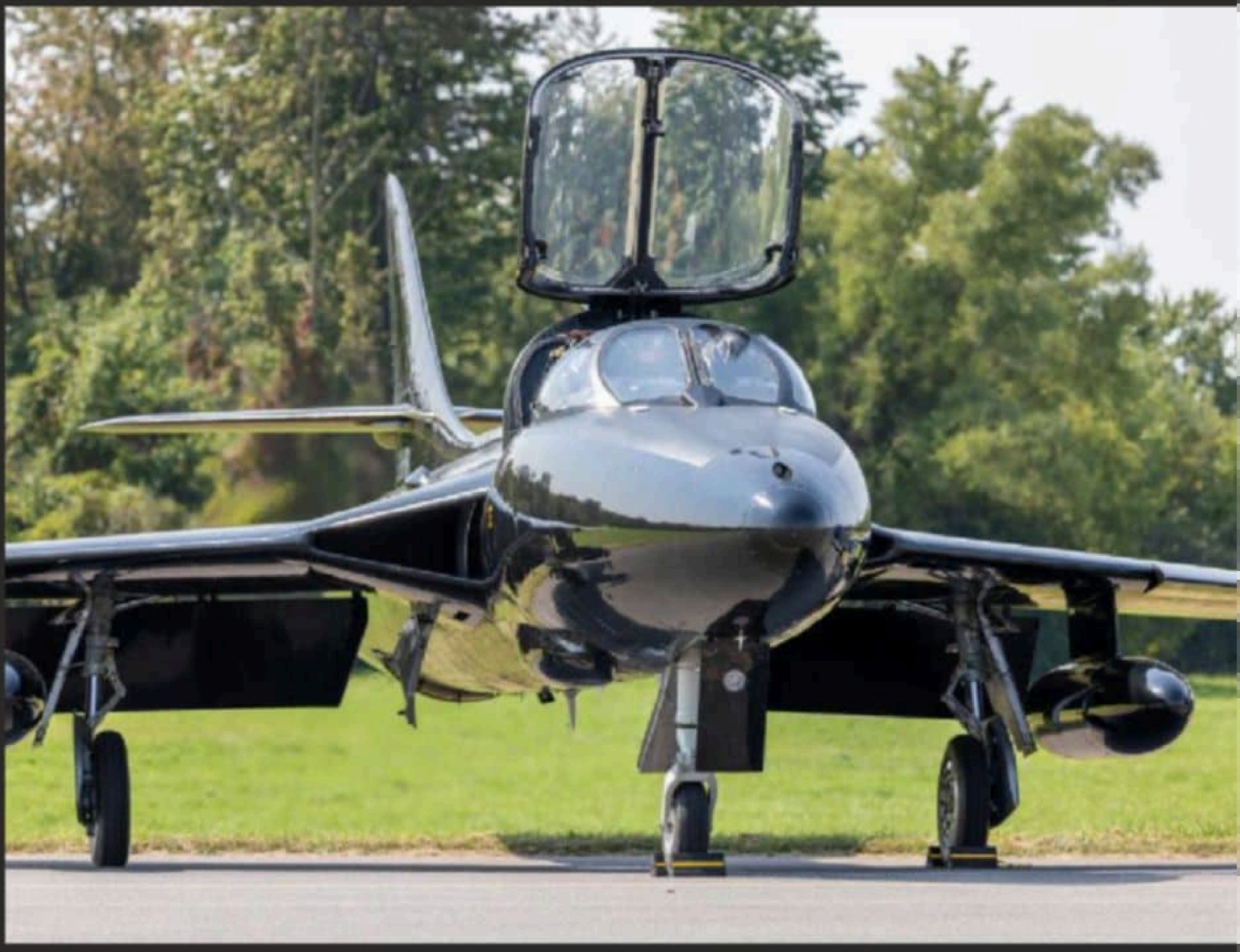
Vintage Aircraft

While modern military aircraft took centre stage, vintage jets played a vital role in showcasing aviation's storied past. Two standout aircraft in the vintage lineup were the sleek black Hawker HUNTER T7B from the International Test Pilot School (ITPS) and the striking red Canadair CT-133 SILVER STAR from the Jet Aircraft Museum. Remarkably, both of these historic jets are based right in London and will hopefully be included in future shows. The iconic Hawker Hunter is a British transonic jet fighter developed by Hawker Aircraft for the Royal Air Force in the late 1940s, with its maiden flight occurring on July 20, 1951. Nearly 2,000 Hunters were produced and served with the RAF as well as the air forces of India, Sweden, and Switzerland. Recently, the Hunter has seen a resurgence, being reintroduced by RED AIR operators as a dependable, supportable asset. The aircraft also has a long legacy as a test pilot trainer, thanks to its transonic capabilities, excellent handling, and wide operating envelope. The two-seat trainer version, with its side-by-side seating, is particularly valuable in flight test training, offering unique advantages for instruction and evaluation.

The Hawker Hunter T.Mk.7 is powered by a Rolls-Royce Avon 122 engine and has a VNE of 620 KIAS at sea level and a service ceiling of 50,000 feet. The ITPS Hawker Hunter T.Mk.7b performed each afternoon of the show, offering a glimpse into the golden era of jet aviation, where style, speed, and cutting-edge technology merged. Its high-speed passes and graceful maneuvers demonstrated why the Hawker Hunter remains one of the most cherished classic jets.
At ITPS, the HUNTER plays a key role in two courses. The Masters Level Test Pilot & Lead Flight Test Engineer Course (EASA CAT-1) is tailored for civil and military pilots and engineers destined for careers in experimental flight testing. Meanwhile, the Test Pilot & Lead Flight Test Engineer Course (Civil EASA CAT-2) focuses on civil industry pilots and engineers involved in flight testing cleared civil aircraft or participating as crew in experimental flight tests for Part 25 (RW Part 29) Transport Category aircraft. Graduates of this course earn a CAT-1 test pilot rating for Part 23 (RW Part 27) light aircraft.

Jet Aircraft Museum's red CT-133 SILVER STAR was another crowd favourite. This aircraft, a Canadian-built version of the Lockheed T-33, played a crucial role in training generations of RCAF pilots. Its striking red livery and sleek profile that honours the “Red Knight”, a Canadian Air Force display that performed from 1958 to 1969, created a stunning sight against the clear blue sky. The CT-133’s display paid tribute to the countless men and women who trained in the aircraft over the years. Its presence at Airshow London was especially significant, aligning perfectly with the show's celebration of the RCAF Centennial and offering a living piece of Canadian aviation history.

Canadair CT-133 SILVER STAR / *image by: Shawn Clish*


Hawker HUNTER T.Mk.7b / *image by: Shawn Clish*

Hawker HUNTER T.Mk.7b / *image by: Shawn Clish*

Timmermans Legends of Flight

The Timmermans Legends of Flight is a private collection of vintage and historic aircraft based in Chatham, Ontario, Canada. Renowned for its dedication to preserving and restoring classic military and civilian aircraft—particularly from the World War II era—the collection is housed at Chatham-Kent Municipal Airport (CYCK), which provides the necessary facilities for maintenance and storage. Founded in 2021 by Annie and Peter Timmermans, the collection is not only a testament to their passion for aviation but also a tribute to the enduring spirit of human innovation and perseverance, a legacy they hope to inspire for generations to come.

Supermarine SPITFIRE Mk. XVIII / image by: Shawn Clish

At Airshow London, the Timmermans Legends of Flight captivated audiences with their stunning North American TF-51D MUSTANG, “Double Trouble Two”. This aircraft has a storied history, having served with the RCAF from December 6, 1950, until it crashed on May 2, 1956. Also featured was a rare Vickers Armstrong SPITFIRE Mk XVIII, a post-World War II variant of the iconic Supermarine SPITFIRE, powered by a Rolls-Royce Griffon engine. The Mk XVIII, developed in 1946, first entered RAF service in 1947, missing World War II by just a few years.

Shortly after Airshow London, Timmermans Legends of Flight announced another exciting addition to their collection: a Nakajima-built A6M2 Model 21 ZERO. This aircraft joins an impressive lineup that already includes the Hawker FB11 SEA FURY that performed at London in 2023 and a recently acquired Messerschmitt Bf 109 G6 that is certain to be a major attraction at future events.

Heavies

Complementing the aerial displays, Airshow London showcased an impressive static lineup of military aircraft, giving attendees the rare opportunity to get up close with some of the world's largest and most iconic planes. A perennial favourite, the Lockheed C-5 GALAXY, made an even bigger splash this year when a second C-5 arrived during Thursday afternoon's arrivals. Both aircraft, one from the 9th Airlift Squadron at Dover Air Force Base, Delaware, and the other from the 337th Airlift Squadron at Westover Air Reserve Base, Massachusetts, were the advanced C-5M SUPER GALAXY. This latest version of the C-5 is equipped with upgraded General Electric CF6-80C2 engines, which provide improved fuel efficiency, greater thrust, and lower noise levels compared to earlier models. These enhancements extend the aircraft's range, allowing it to fly up to 8,899 kilometres (5,524 miles) without refuelling, even while carrying heavy, oversized cargo like helicopters or tanks at a cruising speed of 834 km/h (518 mph). The 'M' model also includes modernized avionics and cockpit systems, such as digital displays and enhanced navigation and communication systems, boosting the aircraft's overall capability and reliability.

Another legendary heavy hitter on display was the Boeing B-52H STRATOFORTRESS from the 93rd Bomb Squadron. The 93rd, part of the 307th Operations Group under the United States Air Force Reserve Command, is the Formal Training Unit for the B-52, based at Barksdale Air Force Base in Louisiana. It's astonishing to think that the B-52's first flight took place on April 15, 1952, that this specific airframe was built in 1961, and that the aircraft is set to remain in service for decades, with plans to extend its operational life until at least 2050 through the Boeing B-52J upgrade. Among the many planned improvements, the most significant is the Commercial Engine Replacement Program, which will replace the existing Pratt & Whitney TF33 engines with modern Rolls-Royce F130 engines. The first B-52J is expected to debut in the late 2020s, with modernization continuing into the early 2030s.

Finally, the Lockheed HC-130H HERCULES that was on display needs to be recognized, as aircraft 1712 was the last operational United States Coast Guard HC-130H. Less than two weeks after Airshow London and after 56 years and 845,000 flight hours serving the Coast Guard, the type was retired when this aircraft made its final flight on September 24.

Boeing B-52H STRATOFORTRESS / image by: Shawn Clish

Lockheed C-5M GALAXY / *image by: Shawn Clish*

Lockheed Martin CC-130J SUPER HERCULES

Joining the Snowbirds and CF-18 in the flying program for the RCAF Centennial was a Lockheed Martin CC-130J SUPER HERCULES from the 436 Transport Squadron, based at 8 Wing/CFB Trenton. The RCAF currently operates 17 of these aircraft, which are considered the backbone of the RCAF's transport fleet. The squadron's motto, "Onus Portamus" (We Carry The Load), dates back to World War II when they flew Douglas C-47 Dakotas over the treacherous Himalayas—known as "the Hump"—to deliver supplies to the Allied 14th Army in Burma. Variants of the C-130 have been a mainstay of the RCAF since 1960, when the first CC-130B was delivered to the 435 Transport and Rescue Squadron.

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image by: Shawn Clish

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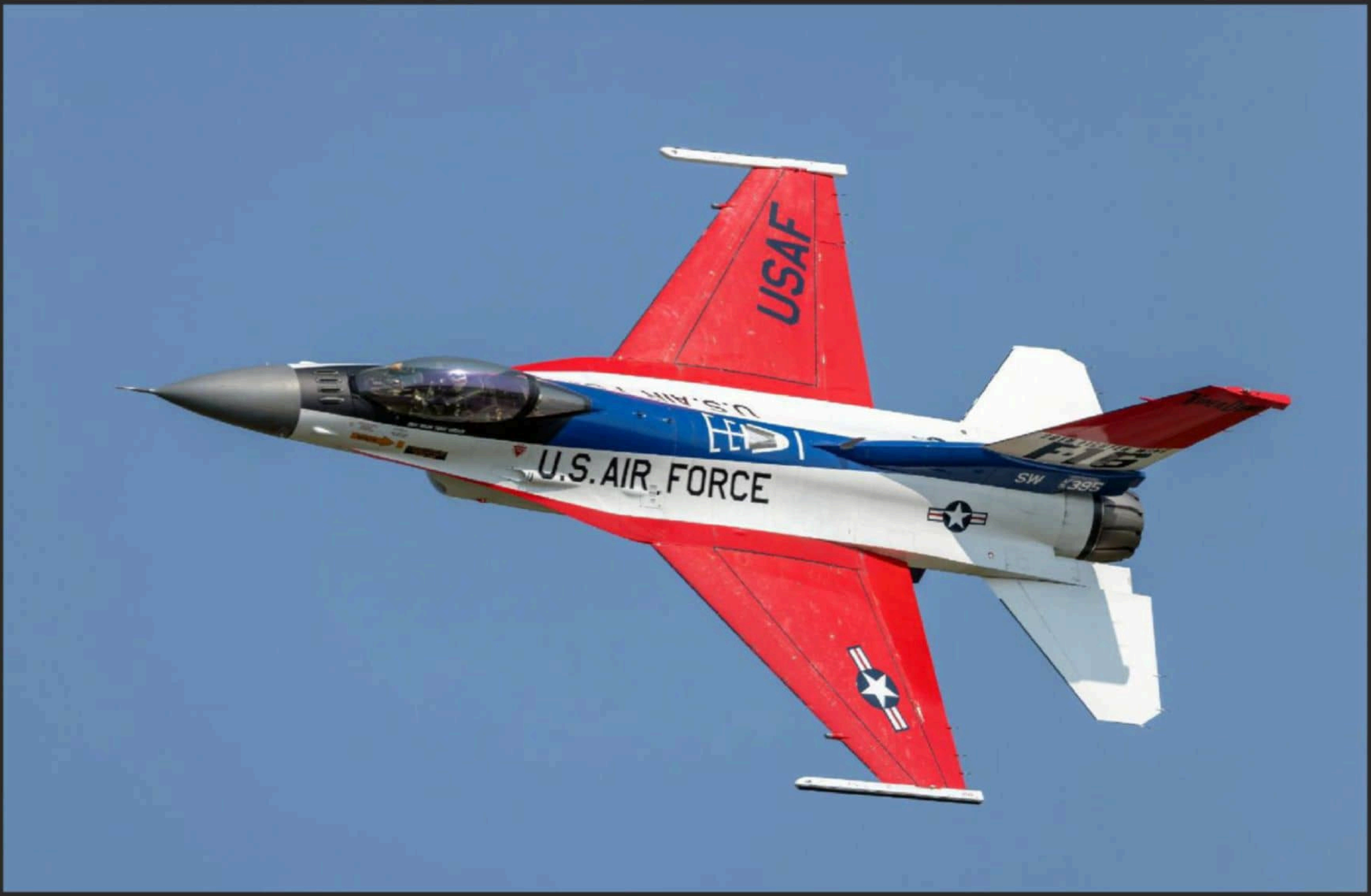

Lockheed Martin F-16CJ FIGHTING FALCON */ image by: Shawn Clish*

F-16 Viper Demo Team

Airshow London was the last of three shows north of the border for the Viper Demo Team, after performances up the highway at CFB Trenton in June and out east in Nova Scotia in August. The team also spent time just south of the border at shows in Ypsilanti, Oshkosh, Rochester and Batavia, so the Canadian audience was intimately familiar with their routine and the stunning "Heritage 50" jet. The honourary paint scheme was unveiled earlier in the year on 15 May at Edwards AFB, the same location that the General Dynamics YF-16 conducted its first flight 50 years earlier. Captain Taylor "FEMA" Hiester, Commander and Pilot of the team, led the effort to replicate the prototype paint scheme, taking the Viper back to its roots. In an impressive feat, the team worked alongside the 412th Test Wing to complete the paint job in under eight weeks, a task that typically takes three months. It was a pleasure to once again witness the flying prowess of Captain Hiester, in his first season as team leader, who is not only a fantastic pilot but also a great ambassador for the F-16 and the Air Force. The "Heritage 50" jet flew all three days, starting with an evening display during the Hour of Power on Friday and again each afternoon during the weekend shows.

F-16 VIPER
DEMO TEAM

official coin: F-16 Demo Team

McMICKEN • DENNY • PALS • SANCHEZ • REAMS • HUTTON • HIESTER • SAMETS-THOMAS • BUTCHER
50
F-16
FIGHTINGIFALCON
1974-2024
DEMO TEAM

official coin: F-16 Demo Team / Anniversary

VIPER DEMO
20TH FIGHTER WING
F-16
AF 91 395 SW
FORCE

Lockheed Martin F-16CJ FIGHTING FALCON */ image by: Shawn Clish*

VIPER DEMO
20TH FIGHTER WING
F-16
AF 91 395 SW
U.S. AIR FORCE

Lockheed Martin F-16CJ FIGHTING FALCON */ image by: Shawn Clish*

Falcon´s Nest

Accompanying the two F-16s from the Viper Demo Team, a striking lineup of ten jets was arranged on the cargo ramp, aptly named the "Falcon's Nest." This segment of the static display celebrated five decades of the highly maneuverable F-16 and its rich history, rooted in the innovation of the legendary Fighter Mafia. Contributing to this tribute were ten aircraft provided by one squadron from the Air Education and Training Command and three Air National Guard units from New Jersey, Ohio, and South Carolina.

Lockheed Martin F-16C FIGHTING FALCON / *image by: Shawn Clish*

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RESCUE
1. PUSH BUTTON TO OPEN DOOR
2. PULL RING OUT 6 FEET TO
JETTISON CANOPY
Gorden Devils

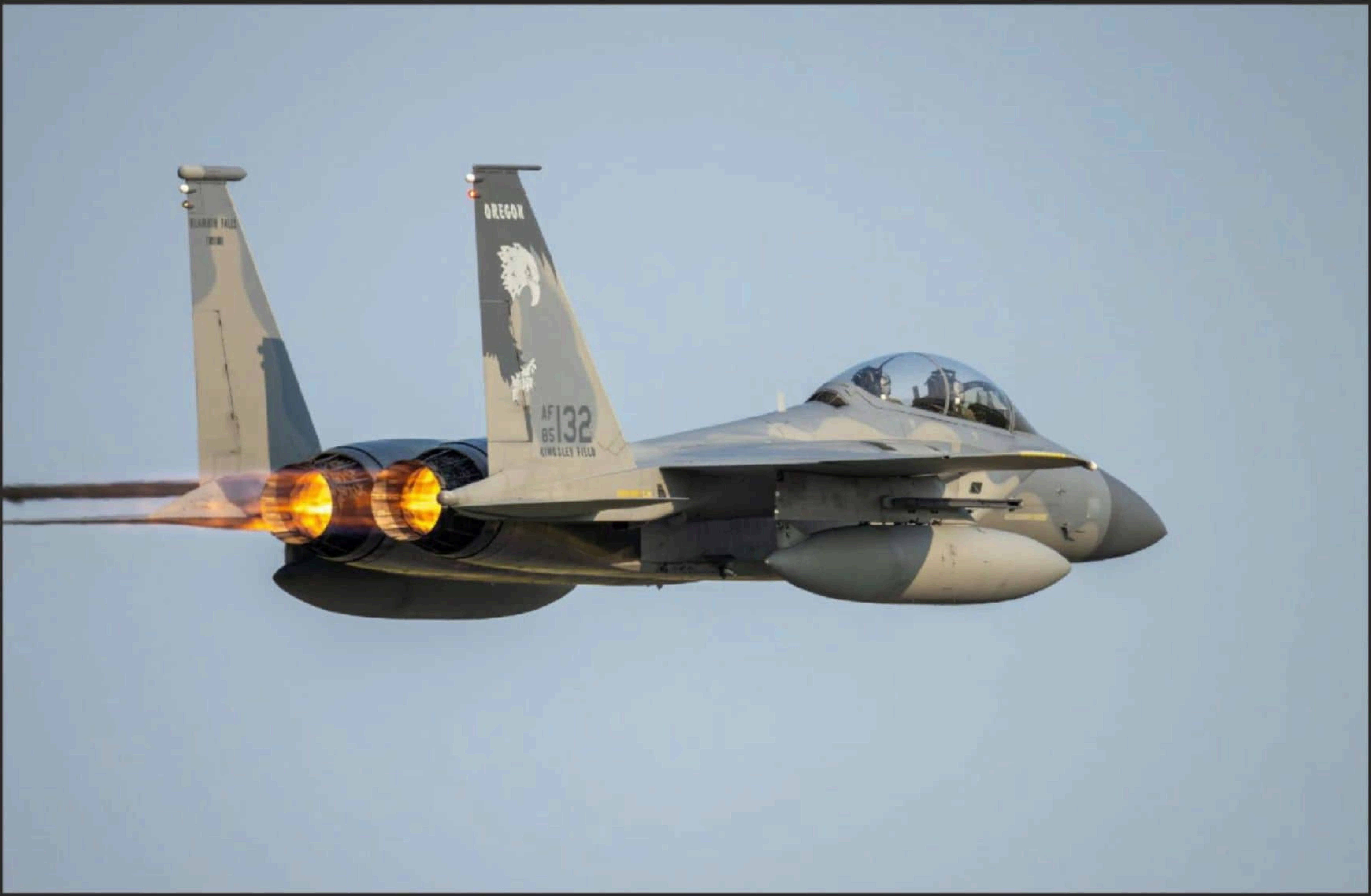
Boeing F-15D EAGLE / *image by: Shawn Clish*

F-15 EAGLE

The United States Air Force has significantly reduced the number of active Boeing F-15C/D EAGLE squadrons as the fleet ages and focus shifts toward newer aircraft like the Boeing F-15EX EAGLE II and 5th-generation platforms. While a few squadrons still operate the F-15C/D in an air superiority role, the numbers have dwindled in recent years due to retirements and restructuring. Structural fatigue and rising maintenance costs have made it increasingly difficult to keep these aircraft mission-ready. Although the overall number of operational EAGLES is steadily decreasing as these airframes approach the end of their service life, it is a true compliment to the original design that the F-15EX retains the fundamental structure of the Eagle while incorporating vastly superior technology, survivability, and mission versatility.

One of the more notable squadrons still flying the F-15C/D is the 114th Fighter Squadron, part of the 173rd Fighter Wing at Kingsley Field in Oregon. Known by the nickname, "Eager Beavers", the 114th FS plays a critical role in the training and readiness of American and allied fighter pilots, serving as the sole F-15 training base for the USAF. The squadron was initially activated as the 439th Fighter Squadron in 1943, flying the Lockheed P-38 LIGHTNING and later the North American P-51 MUSTANG. After the war, it was redesignated as the 114th Fighter Squadron and allocated to the Oregon ANG in 1946. Over the decades, the squadron operated the North American F-86 SABRE, the McDonnell F-101 VOODOO, and McDonnell Douglas F-4 PHANTOM II, before transitioning to the F-15 Eagle in the late 1980s.

Despite the fleet's declining numbers, the air operations team at Airshow London has consistently found ways to showcase these jets each year. In 2024, the 114th returned to London with four F-15s, just as they had in 2022. Fans of the 2022 show WILL fondly recall the dramatic arrival of those Eagles during the Hour of Power, with impressive passes that have become a hallmark of Airshow London. The participation of the Oregon F-15s at Airshow London wouldn't have been possible without the assistance of a Boeing KC-135T STRATOTANKER from the 116th Air Refuelling Squadron "Ace of Spades," part of the 141st Air Refuelling Wing at Fairchild AFB, Washington. The tanker provided essential fuel for the fighters to cross the country and reach the show, landing shortly after the Eagles finished their arrival performance. The Stratotanker sported a vibrant commemorative paint scheme on its tail inspired by the squadron's markings from the 1930s, celebrating the squadron’s 100th anniversary.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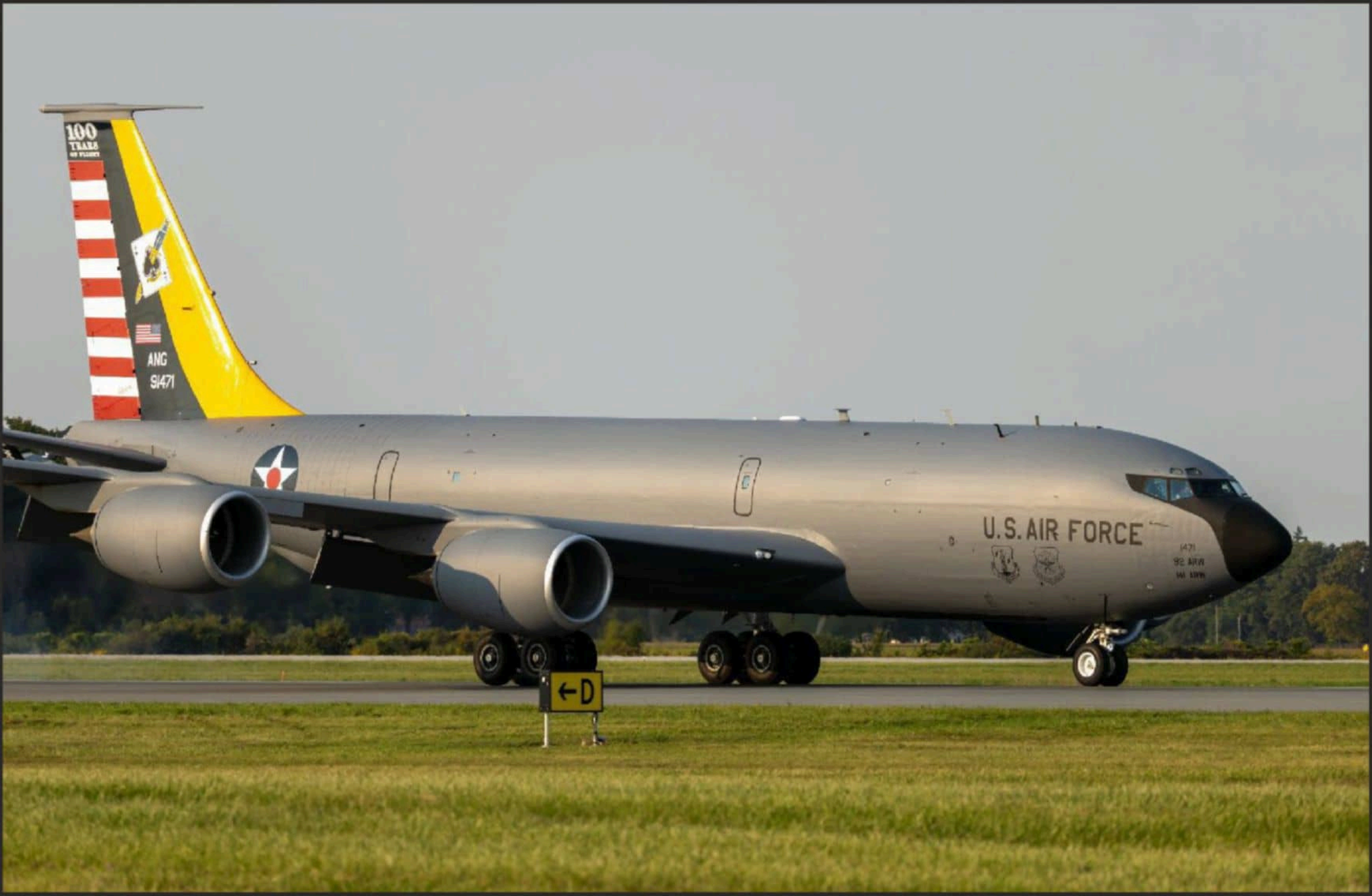
Boeing F-15C EAGLE / *image by: Shawn Clish*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Boeing KC-135 STRATOTANKER / *image by: Shawn Clish*

RAF Red Arrows / *image by: Shawn Clish*

RAF Red Arrows / *image by: Shawn Clish*

RCAF Snowbirds / *image by: Shawn Clish*

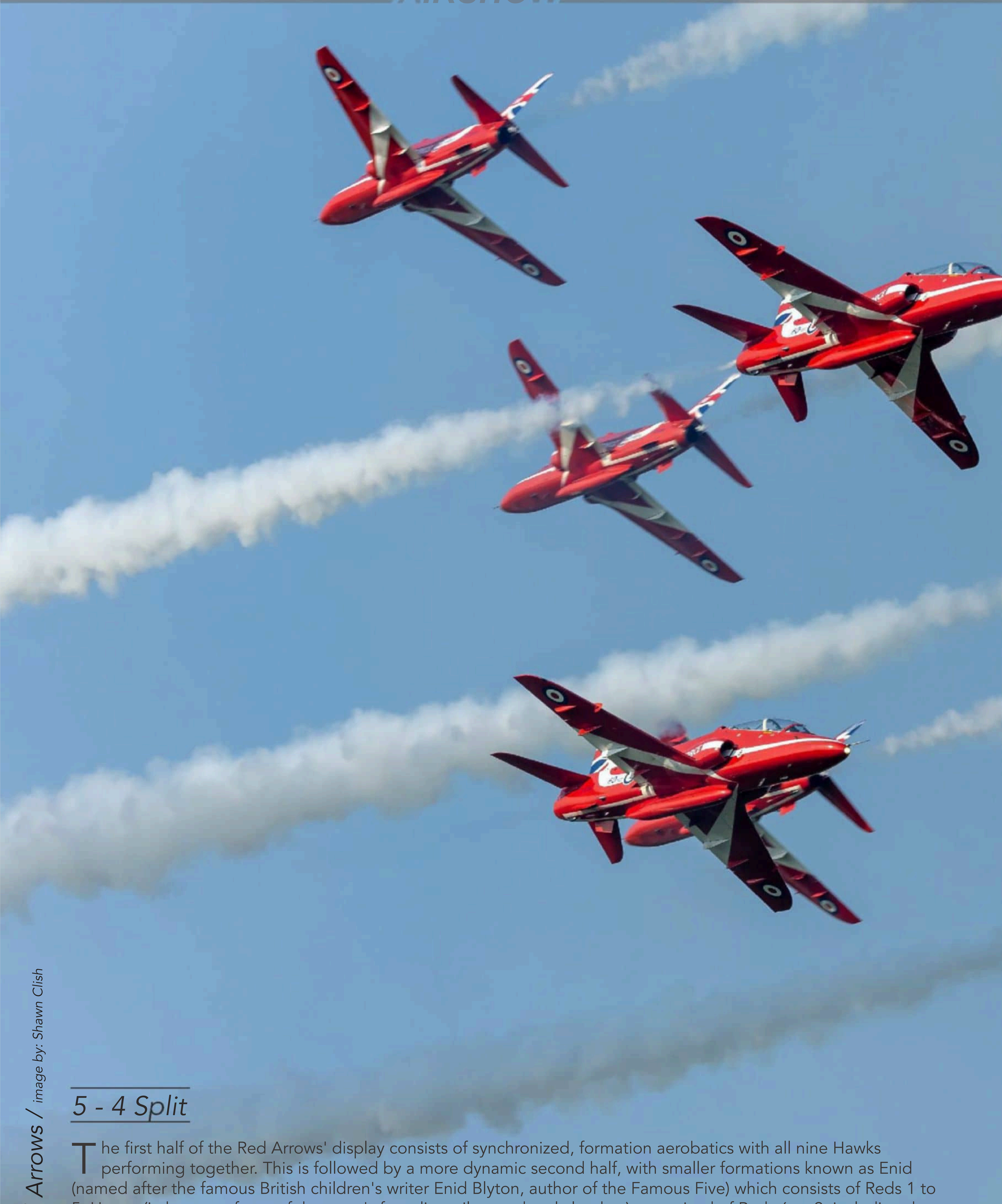
Aerobatic Displays

The 431 Demonstration Squadron Snowbirds are a Canadian institution. Although limited by the performance of their ancient Canadair CT-114 TUTORS, an early jet trainer that first flew on January 13, 1960, the Snowbirds display is a masterclass in aerial choreography. Unfortunately, the days of the nine-ship takeoff and landings are long in the past, but the 2024 season saw the team return to full strength and the display is still full of synchronized maneuvers in tight formations such as the “Big Diamond”, “Canada Goose” or the always impressive “Line Abreast”. Their presence at Airshow London 2024 served as a continuation of the RCAF’s 100-year legacy, especially since the Tutor has been around for more than half of that time. The future of the team is always a topic of discussion, especially with the RCAF plan to retire the Tutors by the end of the decade and while there are some potential replacement aircraft available, it just won’t be the same without the nine twinkling lights.

Joining Airshow London on a rare visit from across the Atlantic, the Royal Air Force Aerobatic Team, the Red Arrows, completed their fourth and final airshow that was part of the Maple Hawk 2024 Tour. The five-week long tour started with stops in Iceland and Greenland and also included flypasts of select cities in the eastern part of the country. This season has been particularly significant for the Red Arrows, as they not only helped celebrate the RCAF Centennial but also marked their own milestone: their Diamond Season, honouring 60 years of captivating airshow audiences worldwide. The Red Arrows' first official display was on May 6, 1965 at RAF Little Rissington and their first public performance in the UK was on May 15, 1965 at Biggin Hill Air Fair. In their sixty year existence the team has had five homes, including a recent move to their current base, RAF Waddington and have performed in 57 different countries.

Surprisingly, the team has only used two types of aircraft, starting with the Folland GNAT and transitioning to the BAe Systems HAWK T1A jet trainer in 1980. They are renowned for their signature red, white, and blue smoke trails and their trademark formation: the Diamond Nine. Like the Snowbirds, the Red Arrows have had some recent turbulence that caused them to perform with fewer aircraft so it was great to see them back at full strength as well in 2024. Their precise flying, immaculate timing and collection of maneuvers have maintained their place as one of the top aerobatic teams in the world. Their Diamond Season performance was an emotional farewell to their Canadian tour and a celebration of 60 years of excellence in flight demonstration.

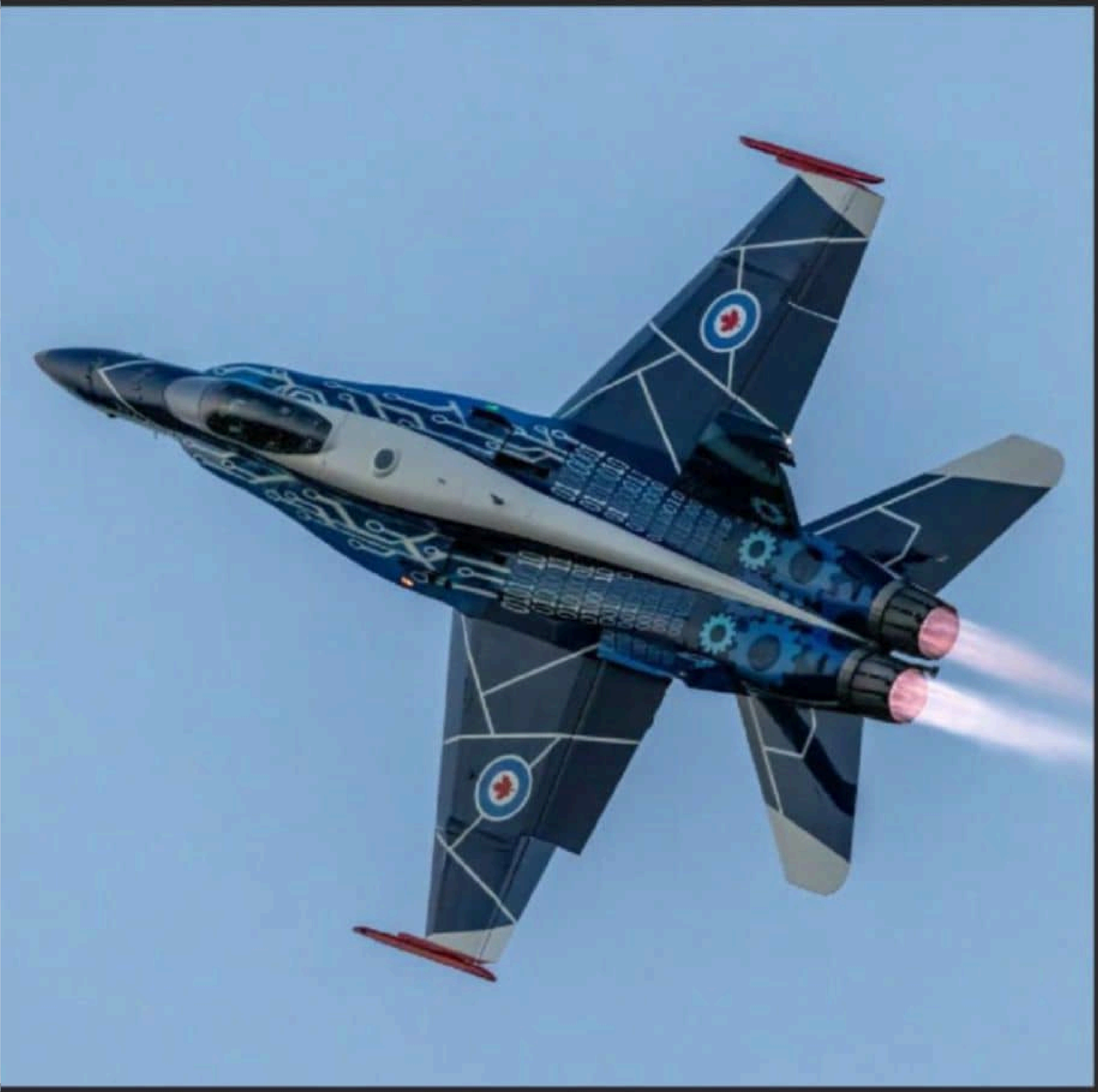
RAF Red Arrows / *image by: Shawn Clish*



RAF Red Arrows / *image by: Shawn Clish*

5 - 4 Split

The first half of the Red Arrows' display consists of synchronized, formation aerobatics with all nine Hawks performing together. This is followed by a more dynamic second half, with smaller formations known as Enid (named after the famous British children's writer Enid Blyton, author of the Famous Five) which consists of Reds 1 to 5, Hanna (in honour of one of the team's founding pilots and early leaders) comprised of Reds 6 to 9, including the Synchro Pair, Reds 6 and 7, who perform the highly-popular opposition manoeuvres during this latter section of the show.
The midpoint is marked by the Short Diamond to 5-4 Split where the Diamond splits for the first time, then the two formations, Enid and Hanna, fly an opposing pass in front of the crowd.



CF-18 Demo Team / *image by: Shawn Clish*

CF-18 Demo Team

The CF-18 Demo Team performed in the signature RCAF 100 Hornet, a striking aircraft painted blue with white accents to commemorate 100 years of the RCAF, served as a tribute to the nation's air power and its role in global defence.

One of the most memorable moments of the entire weekend was the CF-18 display during the Hour of Power. As dusk settled, the RCAF 100 Hornet took off with full afterburners, leaving a streak of flame from its General Electric F404-GE-400 afterburning turbofan engines. Then, after a series of passes, the finale featured a seldom-seen maneuver in which the aircraft's tailhook was dragged along the runway, sending sparks flying through the blackness of the night in a spectacular demonstration of showmanship.

Unfortunately, shortly after Airshow London, the RCAF announced that it would stand down the CF-18 Hornet Demonstration Team for the 2025 air show season due to the modernization of the fighter force as it transitions to the fifth generation CF-35A.

McDonnell Douglas CF-188B HORNET / *image by: Shawn Clish*

CF-18 Demo Team / *image by: Shawn Clish*

Canada
936
RCAF ARC
Cpl Bilodeau
Sgt D'Anjou
FWD

Boeing CF-188 HORNET / *image by: Shawn Clish*

Conclusion

Airshow London 2024 reaffirmed its position as the crown jewel of Canadian airshows, with a sold-out event that showcased a perfect blend of military, vintage and aerobatic aviation. From the RCAF's Centennial celebrations to the Red Arrows' Diamond Season and the Viper's 50th anniversary, this year's show provided something for every aviation enthusiast.

The weather cooperated magnificently, ensuring that the performances could be enjoyed under clear skies, while the static displays offered an opportunity to see aircraft up close and meet with the crews.

The show is scheduled to return from September 5-7, 2025.

Shawn Clish / CHK6

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ATHENS FLYING WEEK 2024
12
INTERNATIONAL AIR SHOW
TANAGRA AIR BASE
SEPTEMBER 14 15

Boeing CH-47D CHINOOK / *image by: Robert Kysela*

There are countless airshows in Europe each year, ranging from small airfield festivals to major events, often organised to mark the anniversary of the host air force or a particular aircraft type. A few events are not one-offs, but are held at regular intervals. These events have the advantage of being able to draw on a great deal of experience in terms of organisation and staging, and because of their high profile there are always some highlights that cannot be seen at other shows. All these statements have always been true of the ATHENS FLYING WEEK in the past. What will it be like in 2024? Let's take a look at the following pages to see if AFW lived up to its high standards again this year.

story & images by: Robert Kysela

Greece´s new advanced trainer

The Hellenic Air Force (HAF -Πολεμική Αεροπορία) was (and still is) the focus of aircraft enthusiasts for several reasons. The reason is simple: the HAF's inventory often included aircraft that were otherwise rarely seen, at least in Europe. One such aircraft was the Grumman T-2 BUCKEYE, a small advanced trainer that made its maiden flight in 1958. Apart from the US Navy and the Venezuelan Air Force, Greece was the only operator of this interesting aircraft. Between 1976 and 1977, the HAF received 40 T-2E aircraft and equipped two training squadrons at Kalamata AB (the 362nd Advanced Training Squadron and the 363rd Operational Training Squadron). A further 12 ex-US Navy T-2Cs followed. Due to their age, the number of airworthy aircraft has fallen dramatically in recent years, with only 3 operational aircraft available last year. Following a tragic accident in which a flight instructor was killed in a T-2E in late November 2023, the aircraft has been permanently grounded. Although the official accident investigation has not yet been completed, the information available to date suggests that fatigue on one of the wings was the cause of the fatal crash. Particularly tragic is the fact that this is believed to have been the last flight of the pilot, Major Epaminondas Kosteas.

Fortunately for the HAF, the designated successor to the T-2E BUCKEYE, the Leonardo M-346A MASTER, was already in the starting blocks and, after a short delay, was able to continue the training and tactical instruction of the Greek pilots. The first two of a total of ten Leonardo M-346 Block 5+ aircraft were delivered to the Hellenic Air Force in May 2023, followed by the third aircraft in August. (All aircraft have now been delivered).

The Greek M-346 MASTER are equipped by the Israeli company Elbit with integrated virtual avionics that simulate a real combat scenario for the trainee, i.e. the system is effectively a flight simulator implemented in a real aircraft.

Under a bilateral agreement between Greece and Israel, Greek pilots are trained at a joint international flight training centre at Kalamata AB. In addition to Elbit Systems as a contractual partner, the Israeli government is also involved.Together with the ten M-346s modified by Elbit, the contract with the Israelis also covers their maintenance and the overall operation of the Israeli-model trainers. The contract is worth $1.65 billion and covers a period of 22 years; basic training with Raytheon T-6A TEXAN IIs will also take place at this Flight Training Centre. At the AFW in Tanagra, two of the Greek Leonardo M-346 MASTERs were seen for the first time in the flight programme.

Leonardo M-346 Block 5+ MASTER / *image by: Robert Kysela*

Leonardo M-234 MASTER / *image by: Robert Kysela*

LEONARDO M-346 MASTER

This small Italian-built advanced trainer and light fighter has a very illustrious past. It was originally a joint Russian-Italian project. The basic concept of the aircraft was designed by the Russian company Yakovlev in the early 1990s. In 1992, the Italian company Aermacchi joined the project, primarily as a financial partner, but also with the aim of marketing the aircraft, equipped with Western technology, within the NATO countries. The first prototype made its maiden flight on 25 April 1996 under the designation Yak-130.

Leonardo M-346A Block 5+ MASTER / *image by: Robert Kysela*

The partnership between the two companies broke down at the start of the new millennium. From then on, each side continued to develop the aircraft on its own, but still based on Yakovlev's design. It is therefore not surprising that the two products look very much alike. The most striking difference is in the undercarriage. While the M-346 has straight main landing gear legs, the Yak-130 has an angled spring joint. This means that the fuselage of the Italian aircraft is further away from the ground, which gives it a slightly different appearance (at least until the M-346 is in the air and the landing gear doors are closed). Despite the external similarities, the two aircraft are different in many respects, even in terms of performance parameters. For example, the M-346 is considered to be more manoeuvrable due to its lower overall weight and more powerful engines. This is particularly noticeable in terms of climb performance (Yak-130 = 75 m/sec; M-346 = 112 m/sec).

In the meantime there is a heavily modified light combat version of both types, equipped with a powerful radar (Yak-130M = BRLS-130R; M-346FA = Griffo M-346). Both aircraft are fully fledged combat aircraft with a wide range of armament options and thus diverse operational capabilities. In both Italy and Russia, the M-346/Yak-130 has a good track record and is now the standard advanced trainer in various air forces. It remains to be seen whether and to what extent the combat version of both models will prevail on the market. This variant would be of particular interest to smaller air forces. In the past, when an armed variant of a trainer was developed, it was always designed as a light fighter. These models were rarely, if ever, suitable for interception missions. The M-346FA is different. Armed with modern air-to-air missiles, this aircraft is ideal for air policing missions.

Sikorsky S-70B-6 AEGEAN HAWK / *image by: Robert Kysela*

Boeing AH-64A+ APACHE / *image by: Robert Kysela*

Airbus Helicopters AS 332C1 *SUPER PUMA* / *image by: Robert Kysela*

Helo Displays

Helicopter demonstrations have always been an important part of Athens Flying Week. And 2024 was no exception. In addition to the obligatory Boeing AH-64 APACHE from the Hellenic Army, the flight programme included two Sikorsky SEAHAWKs from the Navy. The biggest surprise (their participation was not announced) was the visit of two aircraft from the US Marine Corps. A Bell AH-1Z VIPER from Marine Medium Tiltrotor Squadron 365 (VMM-365) followed by a Bell/Boeing MV-22B OSPREY were the undisputed stars of the static display. Both aircraft are very rarely seen in Europe (at least) and although the Czech Air Force recently became the first European operator of the AH-1Z VIPER, none of their aircraft have yet been seen outside the Czech Republic. No less than 189 AH-1Zs have been delivered to the US Marine Corps, equipped with the AGM-179 JAGM (Joint Air-to-Ground Missile), a modern version of the AGM-114 HELLFIRE.

The AGM-179 is also intended for use on the AH-64 APACHE, but it is not yet clear whether the Greek Army (Ellinikós Stratós) will also use it on its AH-64A and AH-64DHA. Greece received its first of a total of 20 AH-64As in June 1995, with a further twelve AH-64DHA Block II LONGBOW variant aircraft ordered in 2003 (but not entering service until 2010). Of these, 29 aircraft are still in active service today (19 x AH-64A+ and 9 x AH-64DHA). The flight demonstration was organised by the Hellenic Army Aviation Apache Display, which belongs to 1 TEEP (1 Tagma Epithetikon Elikopteron = 1st Combat Helicopter Battalion) at the Stefanovikeio Army Base. Unfortunately, this magnificent display has only been seen in Greece so far. A second APACHE (AH-64DHA LONGBOW) could be admired in the static display.

As mentioned above, two SEAHAWKs were on the flight programme at Tanagra. In addition to an S-70B-6 AEGEAN HAWK, the latest acquisition of the Hellenic Navy (Polemikó Naftikó = Navy) - an MH-60R SEAHAWK - was also present. This year, the Greeks have purchased three aircraft of this latest model in the BLACKHAWK/SEAHAWK series. The American designation system for these multi-role helicopters is more than confusing. The US versions are designated H-60, the export version (when sold directly through Sikorsky) is designated S-70, and when sold through the FMS (Foreign Military Sales) programme, the export version is also designated H-60.

Another helicopter highlight was the presentation of an Airbus Helicopters AS 332C1 SUPER PUMA of the Hellenic Air Force. The AS 332C1 belongs to the 384 Search & Rescue Squadron 'Phaeton' and is stationed at the Elefsina Air Force Base. The HAF's SUPER PUMA fleet is responsible for SAR and CSAR missions. The helicopters are equipped with a Thomson-CIF CLIO FLIR system and a Bendix 1500B search radar. The crew on a typical SAR mission consists of the pilot, the co-pilot, a flight mechanic and a paramedic. On a CSAR mission, one or two gunners are added. The SUPER PUMA is designed to carry up to 17 additional personnel.

Bell Textron AH-1Z VIPER / *iamge by: Robert Kysela*

MH-60R "ROMEO"

The MH-60R SEAHAWK from US manufacturer Sikorsky is the latest version of the well-known BLACKHAWK/SEAHAWK helicopter. Although the 'Romeo' is very similar to its predecessors and shares the same engines (General Electric T700- GE-401C), it is significantly more powerful than the older S-70B-2 in terms of avionics and weapons. The MH-60R is equipped with a fully integrated AN/APS-153 Synthetic Aperture Inverse Radar (ISAR) from Telephonics. This radar is capable of independently detecting and classifying submarine periscopes. It also has integrated friend or foe detection and a range of over 200 NM (!). The MH-60R also has a fully digital glass cockpit with four 8 x 10 inch multi-function displays.

Sikorsky MH-60R SEA HAWK / *image by: Robert Kysela*

The MH-60R designation indicates that it is a multi-purpose helicopter (M = Multi-purpose) whose mission spectrum extends beyond anti-submarine warfare (ASW). In fact, the 'Romeo' can be used for surface operations at sea as well as over land (depending on the type of operation, it can be loaded with up to three Raytheon Mk.54-MAKO or Mk.46 lightweight torpedoes, carry 2 x anti-ship missiles such as the AGM-119 PENGUIN or 4 x AGM-114 HELLFIRE). According to the manufacturer, 330 MH-60Rs have been delivered to date, including the three Greek Navy aircraft.

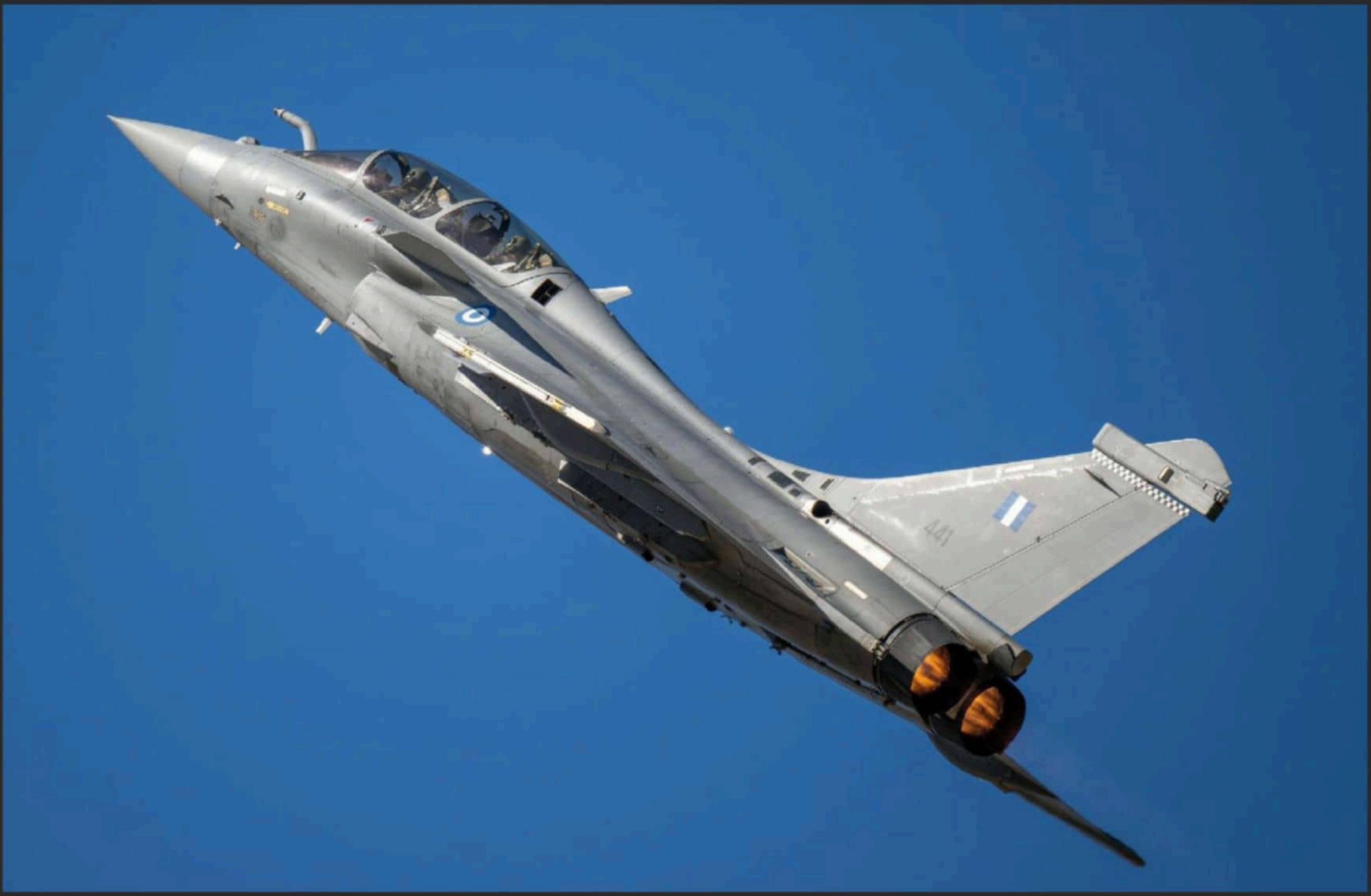
McDonnell Douglas F-4E PHANTOM II / image by: Robert Kysela

Hellenic Air Power

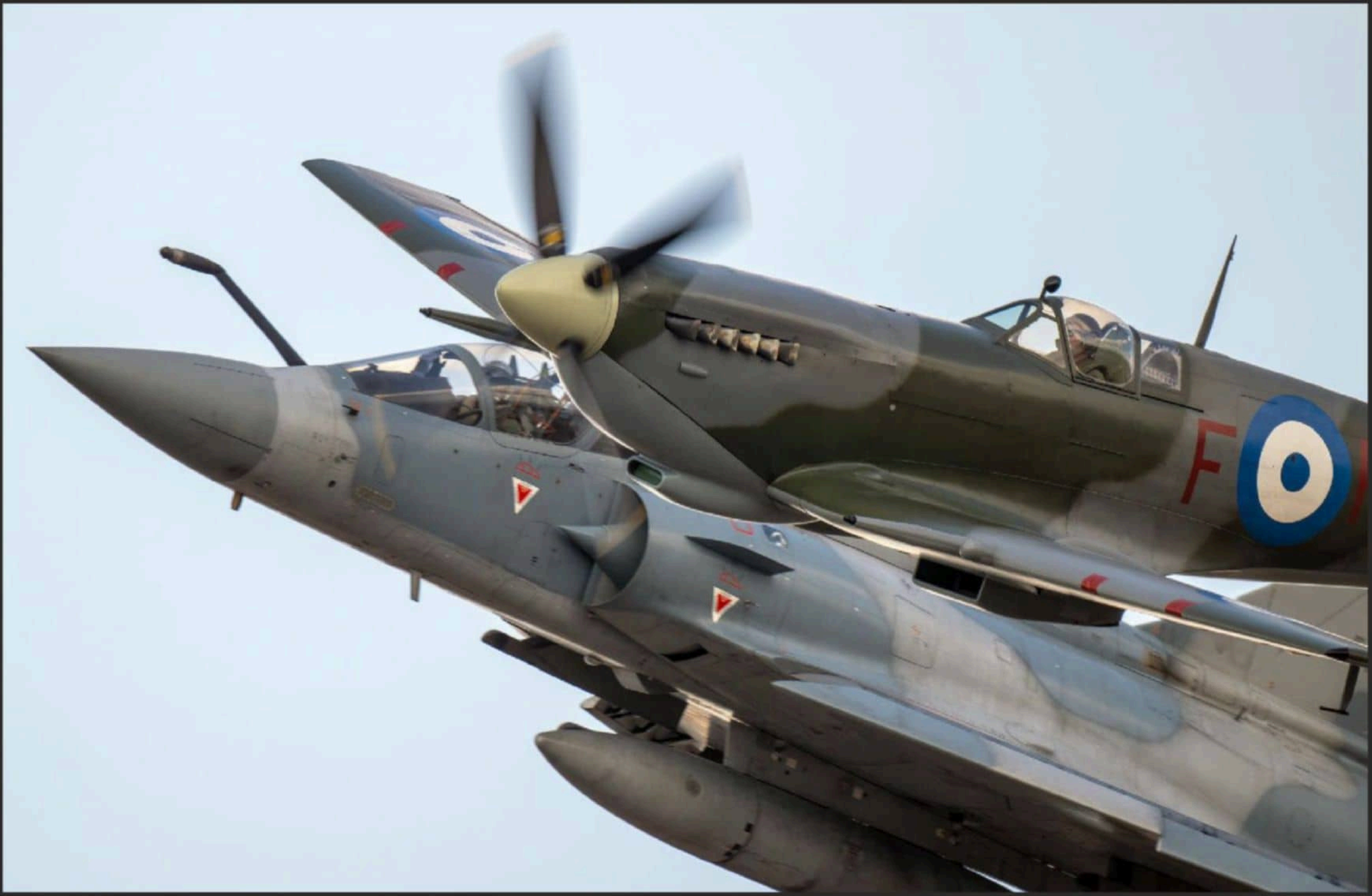
Naturally, at an event in Greece, you would expect a disproportionate presence from the Greek Air Force. In this respect the spectators and the numerous enthusiasts were not disappointed. It is worth noting that the Hellenic Air Force (still) has a relatively large variety of aircraft types. In addition to the legendary McDonnell Douglas F-4E PHANTOM II, which celebrates its 50th anniversary this year, the Dassault Aviation MIRAGE 2000-5 was eagerly awaited. Greece has always been very good at maintaining a balance in the procurement of military equipment and not becoming dependent on a single supplier. This is also the reason why, in addition to the American Lockheed Martin F-16, the Greeks also posses its French counterpart, the Dassault Aviation MIRAGE 2000-5EG. But their days are numbered. Greece has already disbanded 18 MIRAGE 2000 EGMs by 2022. Attempts to sell these used aircraft have so far failed. The remaining aircraft are the more modern MIRAGE 2000-5 EGM/BGM version, which is currently in service with one squadron. The 331 MIRA (squadron) 'Theseus' is based at Tanagra, as is the 332 MIRA 'HAWK', which has swapped its MIRAGE 2000 for its successor, the Dassault Aviation RAFALE F3R. Both squadrons are attached to the 114th Fighter Wing.

Until now, Greek MIRAGE 2000s have rarely been seen at airshows (in the flying programme), not even in their own country. That's why it was so special at AFW 2024 to see the MIRAGE 2000 not only in a tactical scenario with a RAFALE F3R and a simulated dogfight with a Lockheed Martin F-16C, but also in a formation flight with a Supermarine SPITFIRE Mk.IX from the Hellenic Air Museum. The latter also flew a great solo display afterwards, much to the delight of the crowd.

We reported extensively on the Greek McDonnell Douglas F-4E PHANTOM II in our last issue (4/2024), so we will be brief here. In recent years the Greek F-4E PHANTOM II display at the Athens Airshow has been disappointing for many enthusiasts. The entire demonstration consisted of a simulated attack on the airfield and a short flyover. The whole thing took place far away from the spectators, so the disappointment was particularly great among the photographers. AFW 2024 was a different story. Not only did the planes take off and land at Tanagra and taxi close to the spectators on the taxiway, the whole scenario was much more dynamic and at least partially closer to the audience. Much to the delight of the photographers, the two F-4E's of Andravida AB's 338 MIRA flew past the spectators in close formation followed by a break. A third F-4E PHANTOM II was also on static display.



Dassault Aviation RAFALE B F3-R / image by: Robert Kysela



Dassault Aviation MIRAGE 2000-5 EGM / image by: Robert Kysela

Erieye EMB-145H AEW&C / *image by: Robert Kysela*

Airspace surveillance

Modern fighter aircraft are equipped with long-range radars that can cover a range of up to 150 km and more. However, these never cover a 360° radius, but have a limited forward field of view. This is 120° (for most radar systems). These values are not sufficient for comprehensive air surveillance. A special category of aircraft has therefore been developed for long-range air surveillance and as a flying command centre. The common name for this is AWACS - Airborne Warning and Control System. These aircraft are equipped with state-of-the-art electronics and sensors and are able to monitor an airspace of 4 to more than 500 kilometres. Another advantage of these powerful radar systems is their ability to identify (and classify) objects close to the ground better than the on-board radar of a fighter aircraft.

The disadvantage of these flying early warning centres is their high acquisition and operating costs. In response to this, and in order to capture part of this lucrative niche market, the Swedish company Ericsson has developed the PS-890 ERIEYE AESA radar. It was

Erieye EMB-145H AEW&C / image by: Robert Kysela designed to be installed on a variety of platforms and aircraft. The first version has been installed in a Saab 340, which is in service with the Swedish Air Force as the Saab S 100B ARGUS. Because the radar is not located in a rotating dome, but is mounted on both sides in a rectangular housing above the fuselage of the respective carrier aircraft, the PS-890 can cover a range of 300 degrees. An advantage of the PS-890 is that it can be used against maritime targets as well as air targets, which makes it particularly interesting for customers such as Greece.

The Hellenic Air Force has four Erieye EMB-145H AEW&C aircraft, derived from the Embraer ERJ-145 regional jet. Powered by 2 x Rolls Royce AE 3007A1P turbofans with 36.33 kN thrust each, the EMB-145H has a top speed of just over 900 km/h and a range of over 3,500 km.

All Greek EMB-145H AEW&Cs are based at Elefsina AB and belong to the 380 Airborn Early Warning & Control Squadron, where they replaced two Saab 340 AEW&Cs that the Greek Air Force had leased from the Swedes. At Tanagra an EMB-145H was on display in the air and on the ground.

Erieye EMB-145H AEW&C / *image by Robert Kysela*

The god of thunder

The highlight of any Greek Air Force event is, of course, the solo display of the Lockheed Martin F-16 FIGHTING FALCON, the so-called F-16 Demo Team ZEUS. It made its debut at Tanagra AB in 2010 and has since become a fixture on the European airshow scene. While in the early years an aircraft with a very attractive customised livery was used, today it is always an F-16 in standard livery. Most of the Greek F-16s are equipped with CFTs, which are saddle tanks mounted on top of the fuselage. The aircraft shown in Tanagra is an F-16C Block 52+ without a CFT coming of 340 Mira from Souda AB.

F-16C Demo Team ZEUS / *Foto: Robert Kysela*

PC-7 TEAM / *image by: Robert Kysela*

Aerobatic Teams

No airshow is complete without aerobatic teams. Three top teams were guests at Tanagra. First and foremost was the Royal Saudi Air Force team, the SAUDI HAWKS. They made their debut at Tanagra last year. The Saudi team impressed with a very balanced and dynamic performance, despite being a relatively young team. They were formed in 1998 with the aim of representing the Royal Saudi Air Force at events in the Kingdom. The team flies six Bae HAWK Mk.65 and Mk.65a aircraft. Initially, the SAUDI HAWKS manoeuvres were very similar to those of the RAF RED ARROWS - not surprisingly. The team was coached from the outset by former members of the RED ARROWS. Since then, the SAUDI HAWKS have found their own way and developed a great, varied and, above all, distinctive programme. As with other teams from the Arab region, the colours of the smoke used are very intense, which makes the SAUDI HAWKS' performance stand out, especially from a photographic point of view.

The largest team came from Switzerland. The PC-7 TEAM of the Swiss Air Force with its nine Pilatus PC-7 Turbo Trainers was in Greece for the first time and left a lasting impression on the spectators. The programme of the Swiss team is also very impressive, especially the precise formation manoeuvres. The team is led by none other than Obstlt. Daniel 'Stampa' Stämpfli, one of the most experienced pilots of the Swiss Air Force and former solo pilot of the Swiss F/A-18 HORNET (all pilots of the PC-7 Team are HORNET pilots). The PC-7 TEAM was founded in 1989 on the occasion of the 75th anniversary of the Swiss Air Force. In the early years the Pilatus trainers were painted in a very attractive livery (orange fuselage, metallic wings), but from 2008 this was replaced by a livery in the Swiss national colours. The fact that a relatively small country like Switzerland can afford a second aerobatic team alongside the PATROUILLE SUISSE is quite remarkable.

As has been widely reported in the specialist press, the future of the Spanish PATRULLA AGUILA is uncertain. So its return to Tanagra was a welcome addition to the flying programme, although this time it was flown in a five-person formation. This was due to the absence of one of the display pilots. However, as the team did not fly a five-aircraft programme, but the sixth aircraft was simply 'missing', most of the formation manoeuvres were not as visually appealing as they usually are with the AGUILAS.

Although the name Demo Team DAEDALUS suggests a multi-plane aerobatic team, it is in fact a single aircraft. However, as there are two pilots in the Beechcraft T-6A TEXAN II (originally built under licence by Raytheon), the term 'team' is again appropriate. Joking aside, the DAEDALUS team is of course a must at any Greek event. The T-6A is based on the Pilatus PC-9 and is the standard trainer of the Greek Air Force. A total of 45 aircraft of this type are in service in Greece.

SAUDI HAWKS / *image by: Robert Kysela*

PATRULLA AGUILA / image by: Robert Kysela

DEMO TEAM DAEDALUS

Demo Team DAEDALUS / image by: Robert Kysela

High-profile guests

In addition to the demonstrations by the Hellenic Air Force, two flight displays in particular caused quite a stir. One was the solo display of a Saudi Arabian Eurofighter EF-2000 TYPHOON. The Royal Saudi Air Force was present with two of their EF-2000s, one of them in a very attractive special green and gold livery. This specially painted TYPHOON was on static display at the start of the event, while the flying display was flown by an aircraft in standard livery. On Sunday, to the delight of the spectators, the aircraft were swapped so that the special livery could also be seen in flight. The special livery refers to a Saudi government programme called Vision 2030, which aims to enable the Saudi defence industry to source at least 50 per cent of all military equipment from domestic production. It is a very ambitious programme, even if you consider that money is less of a problem in Saudi Arabia. It is more than a challenge to create a complete defence industry, including the entire supply industry, almost from scratch.

In 2006, the Kingdom of Saudi Arabia ordered a total of 72 Tranche 2 and 3 Eurofighter EF-2000s, all of which are based at King Fahd AB. They form the 2nd Squadron, which in turn is divided into three squadrons. The last aircraft from this order will be delivered in 2017. A few months later, a contract was signed for the delivery of another 48 aircraft of the same type. However, a veto by the German government held up the deal for a long time. After much back and forth, it finally agreed to delivery in early 2024. It remains to be seen when the deal will be finalised and the first aircraft will be handed over to the Royal Saudi Air Force.

It is often interesting to see how different nations and their air forces present themselves at an airshow. While in most cases a single aircraft performs a solo display, the French Armée de l'Air et de l'Espace prefers a 'Tactical Display', consisting of two aircraft that first simulate an attack on the airfield in question and then demonstrate various air combat and interception manoeuvres. The origins of this display date back to 1977, when a team called RAFFIN MIKE, consisting of two SEPECAT JAGUAR E aircraft, first (officially) wowed the crowds. Various variants with names such as VOLTIGE VICTOR (AMD MIRAGE F.1C), RAMEX DELTA (AMD MIRAGE 2000N) or COUTEAU DELTA (AMD MIRAGE 2000D) continued this tradition. It is not surprising, therefore, that this year another two-man formation was launched with the latest combat aircraft of the Armée de l'Air et de l'Espace, the Dassault Aviation RAFALE B. It is made up of pilots and personnel from the 4ème Escadre de Chasse (4th Fighter Squadron) at the Base aérienne 113 Saint-Dizier-Robinson. This squadron is in turn divided into three fighter squadrons (Escadron de Chasse, or EC for short), the EC 1/4 'Gascogne', the EC 2/4 'Lafayette' and the Escadron de transformation Rafale 3/4 Aquitaine. The latter is responsible for training pilots and navigators. A tactical display by two fighter aircraft is, in the eyes of many enthusiasts and photographers in particular, the ultimate in air shows. There is no better way for an air force to demonstrate its skills and the capabilities of its equipment!

Dassault Aviation RAFALE B / image by: Robert Kysela

VISION رؤية
2030
المملكة العربية السعودية
KINGDOM OF SAUDI ARABIA
God Bless You

Eurofighter EF-2000 TYPHOON / image by: Robert Kysela

327
RAFALE
ARMÉE DE L'AIR
& DE L'ESPACE

Lockheed Martin F-35A LIGHTNING II / *image by: Robert Kysela*

Conclusion:

Athens Flying Week 2024 was held for the twelfth consecutive year. Once again, the organisers managed to put together a varied programme and to offer the spectators many highlights, even if some of the announced protagonists did not appear. It is worth noting that the demonstrations of the Greek Air Force are no longer limited to short flypasts, but are increasingly dynamic and action-packed, which is duly appreciated by the enthusiasts. Of particular note was the strong presence of the Royal Saudi Air Force, whose participation, as in the last two years, was the icing on the cake. But it wasn't just the Saudis who gave the AFW 2024 an international flavour. The RAFALE DUO from France and a PC-7 display from the Austrian Armed Forces rounded off the event.

The static display was very sparse this time. Apart from some HAF aircraft there was only a Eurofighter EF-2000 of TaktLwG 31 from Büchel and a Lockheed Martin F-35A LIGHTNING II of 32° Stormo from Amendola/Italy.

Robert Kysela

TÜRK YILDIZLARI

Northrop NF-5A FREEDOM FIGHTER / image by: Ozkan Uner

Aerobatics have been an integral part of Turkey's aviation heritage since the early days of the Turkish Republic. Founded in 1923, the young republic quickly recognized the importance of showcasing its aviation prowess.
Founded in 1911, the Turkish Air Force found itself in a succession of wars. This process started with the Balkan Wars and continued with World War I and the War of Independence. Turkish aviators undertook important missions in a wide area extending from Galicia to Yemen and from there to the Caucasus in World War I, and achieved significant successes in the War of Independence, which started under the leadership of Mustafa Kemal ATATÜRK and ended in victory. The history of aerobatics in the Turkish Air Force, which, in addition to fulfilling its duties, had to develop and reach world standards, and to do so it had to move very fast, began in 1914, shortly after its establishment.

Story: Ozkan Uner
images: Ozkan Uner & Robert Kysela

TÜRK YILDIZLARI

The evolution of Türk Yildizlari

The TURKISH STARS are the Turkish Air Force's (Türk Hava Kuvvetleri) longest-standing display team, known to many aviation enthusiasts and even watched by many aviation lovers. Until this team, which was established in Konya under the name of the 134th Squadron, the history of Turkish Aviation Demonstrations is filled with the performances of the "Milli", "Uçak Kugular/Flying Swans", "Akrep/ Scorpion", "Kartal/Eagle - Coşkun" teams, which were established within the Turkish Air Force after the Republic, and which performed with jets such as the Republic F-84G THUNDERJET and North American F-86 SABRE , from the first air show performed by Fazıl Bey in 1914. After all this history, for about 20 years, from 1972 to 1992, there were various small shows, but there was no acro team.

The Turkish Air Force marked a significant milestone when it initiated the formation of a new aerobatic team after a 20-year hiatus. This effort was led by General Halis Burhan, the 20th Commander of the Air Force, whose directive on September 11, 1992, laid the groundwork for establishing a dedicated acro team within the 3rd Main Jet Base 132nd Weapons Tactics and Standardized Squadron Command. A formal order for the creation of the team, consisting of four Northrop NF-5 FREEDOM FIGHTER aircraft, followed on November 7, 1992. Training commenced on December 25, 1992, with these aircraft - supersonic platforms capable of achieving Mach 1.4 - offering an ideal foundation for precision aerobatic maneuvers.

The decision to utilize the NF-5A/B FREEDOM FIGHTER jets, already a part of the Turkish Air Force inventory, demonstrated practicality and foresight. This choice allowed pilots with operational experience on

Türk Yildizlari / image by: Ozkan Uner

these aircraft to transition smoothly into the rigorous demands of aerobatic flying, minimizing the learning curve and ensuring operational efficiency. The Northrop NF-5A/B underwent several modifications to suit their new role. Structural adjustments, including the removal of chaff/flare dispenser units and gun barrels, enhanced their aerodynamics, while the installation of McDonnell Douglas F-4 PHANTOM II-derived mirrors in the cockpit improved pilot visibility, ensuring safer and more precise flying during complex maneuvers.

The decision to utilize the NF-5A/B jets, already a part of the Turkish Air Force inventory, demonstrated practicality and foresight. This allowed pilots with operational experience on these aircraft to transition smoothly into the rigorous demands of aerobatic flying. The NF-5A/B underwent several modifications to suit their new role. Structural adjustments, including the removal of chaff/flare dispenser units and gun barrels, enhanced their aerodynamics, while the installation of F-4-derived mirrors in the cockpit improved pilot visibility. Additionally, the wingtip fuel tanks were converted into smoke oil tanks and a pump with a pipeline towards nozzle to make the oil pumped to nozzles & burn to create the smoke. Providing the visual spectacle that became a hallmark of the team’s performances. Also, the aircraft's fuselage is painted in its original color scheme, just as it was until 2012

RK YILDIZLARI

The aerobatic team, known as "TÜRK YILDIZLARI" (Turkish Stars), made its public debut on June 18, 1993, at the 4th Main Jet Base Command in Akıncı, Ankara. This initial display, featuring four NF-5A/B FREEDOM FIGHTER´s, marked the beginning of an era of high-caliber aerobatic demonstrations. Following this successful introduction, the team was elevated to squadron status, recognized as the "World's Youngest Supersonic Acroteam." By 1994, the team expanded its repertoire to include five- and six-aircraft formations. These advancements, along with a series of technical and aesthetic upgrades to nine NF-5A and one NF-5B aircraft, were completed by July of the same year.

In October 1994, TURKISH STARS conducted their first major public performance at the 8th Main Jet Base Command in Diyarbakır, followed by a prominent display during the Republic Day ceremonies on October 29. Over time, the squadron's expertise grew, culminating in the execution of a seven-jet formation at the Distant Thunder-95 Exercise on April 20, 1995, held at the 1st Main Jet Base Command in Eskişehir. This performance, attended by domestic and international observers, showcased the team’s growing capabilities.

By the year 2000, the Turkish Stars had performed their 100th demonstration, a milestone celebrated at Ankara’s Atatürk Cultural Center during Republic Day festivities. In 2003, the team achieved another breakthrough with an eight-jet formation display, setting a global precedent as the only supersonic aerobatic team capable of performing such a feat.

official logo: TURKISH STARS

Northrop NF-5B FREEDOM FIGHTER / *image by: R. Kysela*

Team Leader Maj. Kocabas / *image by: Ozkan Uner*

Maj Sami Yalcin & Capt. Mehmet Kilic / *image by: Ozkan Uner*

Global Recognition

Throughout the 1990s and 2000s, the TURKISH STARS established themselves as a premier aerobatic team on the global stage. Their striking red-and-white jets became iconic symbols, adorned with the crescent and star emblem of the Turkish flag. The team participated in prestigious airshows worldwide, including the Royal International Air Tattoo in the United Kingdom (RAF Fairford), the MAKS Airshow in Russia (Zhukovsky), and numerous other events across Europe, the Middle East and North Africa.

Their performances combined technical precision, creativity, and teamwork, with maneuvers like the "Star Burst" captivating audiences. These displays required meticulous coordination and exceptional skill, reflecting the rigorous training regimen and operational experience of the pilots.

By 2024, the TURKISH STARS had performed 668 shows in 121 provinces and districts across Turkey and 168 demonstrations in 25 countries. Notable achievements included their 500th show in Izmir on October 29, 2024, coinciding with Republic Day celebrations.

Like most aerobatic teams, the TURKISH STARS offer three distinct display packages tailored to different conditions: High, Low, and Flat Demonstration Packages. The High Demonstration Package is performed at an altitude of 9,000 feet (3,000 meters), the Low Demonstration Package at 4,000 feet (1,300 meters), and the Flat Demonstration Package at 1,000 feet (300 meters). Each package showcases a variety of formation styles and aerobatic maneuvers. The High and Low demonstrations highlight intricate formations and solo displays, while the Flat Package focuses on dynamic transitions and column formations suitable for lower altitudes.

During these airshows, pilots operate at the limits of their aircraft, enduring forces of 5.5 - 6G in group movements and -3 to +7.33G in solo maneuvers. The displays are performed at speeds ranging from 200 to 520 knots (370 km/h to 960 km/h), requiring exceptional psychomotor skills, precise coordination, and sharp judgment. With their complex formations and precise maneuvers, the TURKISH STARS have earned recognition as one of the leading aerobatic teams on the global stage.

TÜRK HAVA KUVVETLERİ
TÜRK YILDIZLARI
1992
G.ES

Maj Gökhan Esen / image by: Ozkan Uner

Northrop NF-5A FREEDOM FIGHTER / image by: Robert Kysela

Techn. Specs: Northrop NF-5A TURKISH STARS

Length:	47 ft 2 in (14,38 m)
Height:	13 ft 2 in (4,01 m)
Wingspan:	25 ft 8 in (7,70 m)
Take-off weight:	14 689 lbs (6 662 kg)
Vmax.:	817 mph (1 315 km/h)
G-limits:	- 3G to +7,33G
Range:	1 359 nm (2 518 km)
Powerplant:	2 x General Electric J85 CAN-15
Performance:	2 x 4 300 lbf (2 x 19,27 kN)
Armament:	none

Training & Preparation

Becoming a TURKISH STARS pilot is a testament to the professionalism of the Turkish Air Force. Pilots selected for the team are experienced combat aviators, often with thousands of flight hours on various fighter aircraft. The training process is comprehensive, covering a range of advanced aerobatic techniques and formation flying.

Daily training flights over Konya Air Base form the core of the squadron's routine. Each maneuver is rehearsed repeatedly to ensure precision, synchronization, and safety. Ground-based exercises and simulations supplement these flights, preparing pilots for various scenarios, including emergency situations. This holistic approach maintains the team's reputation for excellence.

Maj Esen, Maj Kocaman, Team Leader Maj Kocabaş, Maj Balta, Squadron Commander Maj Kömür / *image by: Ozkan Uner*

Ground Crew

Behind every successful airshow is the unwavering support of the ground crew. These professionals are responsible for maintaining and preparing the aircraft, ensuring optimal performance and safety. Their tasks range from routine inspections to complex repairs and modifications, all carried out with meticulous attention to detail.

During international airshows, the ground crew operates with efficiency, often under challenging conditions. Their ability to adapt and address mechanical issues on-site underscores their critical role in the team's success.

Public engagement is a key focus of the TURKISH STARS, an aerobatic team known for participating in national events, military parades, and international airshows. Their performances aim to connect with audiences, inspire interest in aviation, and demonstrate the precision and skill involved in aerobatic flying. Each display is a carefully choreographed mix of solo maneuvers, formation flying, and synchronized aerobatics. Signature moves such as the "Star Burst," where the formation splits in multiple directions to create a stunning visual, and the "Mirror Pass," in which two jets fly as mirror images of each other, showcase their expertise. Another highlight is the "Corkscrew," featuring one jet spiraling around another in a coordinated display of precision and teamwork.

Performances are often accompanied by music and narration tailored to the audience, with narration delivered in the local language when performed internationally. These thoughtful touches enhance the viewing experience, making the performances more engaging and relatable to diverse audiences. By participating in global events, the TURKISH STARS contribute significantly to cultural exchange and foster international goodwill, using their displays as a symbol of collaboration, mutual respect, and shared passion for aviation. Beyond airshows, the Turkish Stars actively work to inspire future generations of aviation professionals. They regularly visit schools and universities, delivering engaging presentations, conducting thrilling flight demonstrations, and sharing their unwavering passion for the aerospace field. These outreach efforts provide students with invaluable opportunities to interact directly with pilots and ground crew, offering insights into careers in aviation and engineering. These visits often include discussions about teamwork, discipline, and the technological innovations driving modern aviation, broadening students' horizons and encouraging them to explore dynamic career paths within the aerospace industry.

Northrop NF-5A FREEDOM FIGHTER / image by: Ozkan Uner

Social Media

Starting with their 20th year in 2012, the Turkish Stars became the visual ambassadors of the Turkish Air Force on social media, effectively using digital platforms to connect with audiences about their events and initiatives. They leveraged these channels not only to promote their airshows but also to inspire and motivate the younger generation to consider a future as pilots or aviation professionals in the Air Force. By sharing captivating images and videos, the team successfully showcased the excitement and precision of aerobatic flying while highlighting the opportunities within the field of aviation. In addition to their individual efforts, the team collaborates with musicians, photographers, and videographers to produce high-quality, engaging content that reaches an even wider audience. These collaborations add a creative dimension to their outreach, blending the artistry of music and visual storytelling with the technical prowess of aerobatic maneuvers. The Turkish Stars' content often includes behind-the-scenes footage, interviews with pilots and ground crew, and creative representations of their performances, providing fans with a deeper understanding of their craft.

Through their vibrant online presence, the team celebrates the artistry and engineering behind aerobatic flying and emphasizes the dedication required to perform at such a high level. Their efforts make aviation more accessible and inspiring for a global audience, cultivating a sense of excitement and admiration for the field. By continually engaging with aviation enthusiasts worldwide, they play a crucial role in spreading the joy of flight and fostering a new generation of dreamers and achievers in aerospace.

Northrop NF-5A FREEDOM FIGHTER / image by: Ozkan Uner

Future Prospects

The TURKISH STARS are continually evolving, adopting advancements in technology to enhance their operations. While the Northrop NF-5A/B FREEDOM FIGHTER remain a cornerstone of their fleet, plans for modernization are underway. One of the most promising options under consideration is the integration of the TAI HÜRJET, a trainer aircraft developed by Turkish Aerospace Industries (TAI). After the HÜRJET's maiden flight in 2023, the Turkish Stars participated in formation flights with the aircraft in Ankara, the Efes Exercise, and Teknofest Adana. These events highlighted the compatibility of the HÜRJET with the team's requirements, suggesting it could play a central role in their future.

The potential transition to the TAI HÜRJET represents a significant step forward, bringing modern capabilities to the team and aligning with broader advancements in aviation technology. This shift could enhance the TURKISH STARS performance and ensure they remain competitive in the global aerobatic arena. The integration of indigenous aircraft like the HÜRJET also reflects ongoing efforts to develop locally produced aviation solutions.

The team's commitment to excellence extends beyond aircraft upgrades. Investments in training, technology, and infrastructure are central to ensuring the TURKISH STARS continue to perform at the highest level. These efforts demonstrate a focus on sustainability and progression, securing their place in international aerobatic displays for years to come.

In 2024, the TURKISH STARS began their season with a demonstration flight at the World Defence Show in Riyadh, Saudi Arabia, showcasing a 6-jet formation. Following the retirement of Squadron Commander and Team Leader Lt. Col. Kemal Koyunluoğlu, the team transitioned to a 5-jet formation under the leadership of Maj. Kürşat Kömür, the new Squadron Commander, and Maj. Hasan Kocabaş as Team Leader. Training for new members, Maj. Sami Yalçın and Capt. Mehmet Kılıç, is ongoing to prepare them for future performances.

These developments mark a new chapter for the TURKISH STARS, emphasizing adaptability, collaboration, and innovation as they continue to engage audiences worldwide. Their journey embodies the growth of Turkish aviation, celebrating the progress made over decades and the aspirations for future advancements.

More than just a demonstration of aerobatic prowess, the TURKISH STARS story is one of perseverance, teamwork, and a shared vision of pushing boundaries in aviation.

TAI HURJET & TURKISH STARS first flight / image by: Ozkan Uner

The team who made the flight; TAI HÜRJET & TURKISH STARS together for the first time / image by: Ozkan Uner

The impact of their performances extends beyond airshows. By inspiring unity and admiration, the TURKISH STARS create a connection with audiences, offering a sense of pride in collective achievements and a reminder of the possibilities born from dedication and innovation. Their pursuit of excellence serves as motivation for people of all ages, encouraging an appreciation for the power of teamwork and ambition. As the team looks to the future, the transition to modern aircraft such as TUSAŞ's HÜRJET signals a new era of growth and opportunity. The HÜRJET, designed as an advanced jet trainer and light attack aircraft, embodies the cutting-edge technology and engineering capabilities of Turkey's aerospace industry. With its modern avionics, supersonic capabilities, and agility, the HÜRJET is perfectly suited for the rigorous demands of precision aerobatics. This next-generation aircraft not only enhances the team's operational capabilities but also serves as a testament to Turkey's commitment to advancing its aerospace technology. The integration of the HÜRJET into the TURKISH STARS fleet represents a bold step forward. Its state-of-the-art systems and enhanced maneuverability allow for even more dynamic and visually stunning performances, pushing the boundaries of what is possible in aerobatic flying. Additionally, the adoption of a domestically produced aircraft underscores the team's role in showcasing Turkey's technological achievements to the world.

Sqn Cmdr Kömür / image by: Ozkan Uner

The TURKISH STARS represent the skill, dedication, and teamwork of the Turkish Air Force. As ambassadors of the nation's aviation capabilities, they showcase the combination of artistry and engineering that defines modern aerobatics. Each performance reflects a commitment to precision and collaboration, captivating audiences with a seamless display of coordination and innovation.

Özkan Üner

TURKISH STARS / TÜRK YILDIZLARI / image by: Ozkan Uner

Stuart Goldspink

-IIH/30661S
DTD509 ARM
LFPD/GA/-IIH/
17226D
DTD 512
W T
NO STEP

image by: Robert Kysela

Hawker SEA HURRICANE Mk.Ib

So far, we have written about various events, exhibitions, military exercises or even certain types of aircraft, but the people involved in aviation, especially military aviation, have been somewhat neglected. This is about to change. We will be publishing regular reports on aviation legends, pilots, famous engineers and people who have made a name for themselves in the aviation industry. The first report by our correspondent Bob Barton is about Stuart Goldspink, a great pilot from the British warbird scene, who is associated with a legendary aircraft like no other:
the Hawker HURRICANE.

Story: Bob Barton
Images: Will Moore; Rob Kysela

AVGAS
100LL
COOLANT
AL3

SHUTTLEWORTH
The Collection
GOLDSPINK

Stu Goldspink / image by: Will Moore

Stuart Goldspink

Stu(art) Goldspink known as Spinkers, should actually be known as Mr. Hurricane for Stu has flown the majority of the airworthy Hawker HURRICANE in the world amassing 250 hours on the type in over 500 sorties. Of course, Stu doesn't only fly HURRICANEs and has flown and continues to fly a wide variety of warbirds including the Republic P-47 THUNDERBOLT G-THUN, "Nellie", operated by Fighter Engineering Limited. This, somewhat surprisingly, is his favourite aircraft. Stu and I met in the pilot's room at Shuttleworth where he regularly flies many of the Collection's aircraft and which was instrumental in encouraging Stu to become a pilot in the first place.

Stu is a third-generation aviator. His grandfather served in the Balloon Regiment of the Royal Flying Corps and he went on to be an observer in Royal Aircraft Factory BE2s. In the early days of WWI aviation was mostly about observation and reporting enemy positions and movements back to the field commanders, so the observer was the important crew member and the pilot just the driver. Fighter on fighter dogfighting came later. Stu's family lived near Old Warden and his grandfather would visit bringing various model aircraft with him when Stu was a boy.

His father joined the RAF in January 1942 serving until March 1947, flying 25 different aircraft including air-sea rescue Supermarine Walruses and Vickers Warwicks with 293 Sqn RAF in North Africa and Italy. After the War he flew Yorks and Dakotas on the Berlin Airlift and on leaving the RAF, having clocked up about 1500 hours, flew as Captain on Vickers Viscounts for BEA until he lost his licence through a cataract in his left eye in 1963. It was around this time that he became involved in establishing the Shuttleworth Collection as we know it today and Stu would accompany him to Old Warden, sparking Stu's interest in aviation.

One day Stu met Dorothy Shuttleworth and she said to him, what are you going to do when you grow up? And he said, he wanted to be a pilot. Reputedly she said, "Well, you can fly all my son's aeroplanes". It took Stu 48 years to realise that prediction so that today as a Shuttleworth Collection pilot Stu flies many of the Collection's airworthy aircraft including of course the SEA HURRICANE Mk. Ib.

Stu attended Old Waden Primary School and St Edmunds College gaining 'A' Levels in Maths, Physics and English Language but elected not to go to Uni but because he could get discounted air travel through his Dad, he decided to go to Australia and New Zealand which was where he learnt to fly on the Victa Airtourer, a 100hp low-winged all-metal Monoplane. Returning to the UK Stu completed his PPL on the SOCATA Ralleye at Dunkeswell in Devon. His instructor was Basil Pring a wartime Hurricane and Spitfire pilot. PPL in hand Stu decided to get his CPL through hours building and passing the exams, thus he embarked on 1200 hours of glider towing for the London Gliding Club at Dunstable flying the Chipmunk.

Hawker HURRICANE Mk.I / image by: Robert Kysela

Hawker SEA HURRICANE Mk.Ib / image by: Will Moore

Hawker HURRICANE Mk.I/ image by: Robert Kysela

Mister Hurricane

Stu then moved on to crop spraying with Bowker Aviation in the Summer months flying the Piper PAWNEE, clocking up an average of 100 hours a month, totalling 3500 hours. He did this for 8 years, during which time he built a Pitts S1S Special which he displayed and competed in aerobatic competitions. He also flew a Stampe and a 450 STEARMANn in the Biggles feature film causing him to fancy being a film pilot but sadly there wasn't enough work. Stu then progressed to airline flying with Thurston Aviation at Stansted as First Officer on the Beech KING AIR and Shorts 330. This led after six months to Britannia which became Thomson and then TUI where Stu, starting as First Officer on Boeing 737s, progressed to Captain on Boeing 757s and 767s.

The last four years of Stu's commercial flying career were spent as Captain of 'Black Pearl', the luxuriously appointed black painted Boeing 757, G-TCSX operated by TAG. This aircraft had 55 seat/beds and a large crew, including a chef and a doctor to look after the well-heeled passengers who were flown all over the world to see the sights such as volcanos, mountains and the Victoria falls. His retirement at 65 coincided with the outbreak of COVID in 2020.

The first warbird that Stu flew was a Nieuport 28 powered by a 160 hp Gnome rotary engine, having been invited to fly her by Guy Black the boss of the Historic aircraft Company. Guy also gave Stu the chance to fly his Supermarine SPITFIRE TE566 for which was briefed by John Allison (now Air Chief Marshall Sir John Allison (ret'd)), John giving the most comprehensive brief that Stu has ever received. Stu's comment on being given these opportunities was that everyone needs a Fairy Godmother!

This led to "Hoof" Proudfoot inviting Stu to fly for the Fighter Collection for which his first type was Hurricane Mk.XII Z5140 (G-HURI). In his spare time Stu has rebuilt a second Pitts S1 and in association with Jean-Michel Munn, Shuttleworth's Chief Engineer, has rebuilt a Pitts S2. Stu and Jean now display the Pitts pair for Shuttleworth and for their own amusement.

Stu's display flying career covers aircraft belonging to The Shuttleworth Collection, The Fighter Collection, Hangar 11, The Aircraft Restoration Company, The Old Flying Machine Company, the Historic Aircraft Company, Fighter Aircraft Engineering ltd and Ultimate Warbirds. On top of that he is Chief Pilot for Hawker Restorations who specialise in restoring Hawker HURRICANEs. Aa well as starting his flying career in New Zealand he has returned many times flying for the Vintage Aviator, the Alpine Fighter Collection and Old Stick and Rudder.

In in his whole flying career Stuart Goldspink has logged a total of 26,000 flying hours covering 170 different types of aircraft.

Hawker HURRICANE Mk.I / *image by: Robert Kysela*

Hawker HURRICANE Mk.I / Image by: Robert Kysela

Stu Goldspink´s Hurricane History:

Listed below are all the airworthy Hurricanes in the world with details of Stu's association with each one. In a nutshell there are 17 airworthy Hurricanes and Stu has flown 12 of them:

Australia
HURRICANE Mk.XII 5481 VH-JFW (previously registered C-FDNL) was imported from Canada. In early 2014 she was shipped to the UK & registered as G-ORGI with Biggin Hill Warbird Experiences. Has since been shipped to the States to the Collings Foundation.

Stu: "I carried out the acceptance Air Test for Richard Grace prior to the aircraft going to Biggin Hill".

Czech Republic
HURRICANE Mk.IV KZ321 (previously registered G-HURY and CF-TPM) – Crashed in August 2022.

Stu: "I delivered her to Hurricane Restorations and flew her a lot before she went to the Czech Republic".

Canada
HURRICANE Mk.XII RCAF 5447 [registered as C-GGAJ - Flown in 2022, registered CF-TPM

Stu: "This is one I haven't flown".

France
HURRICANE Mk.IIA P3351 (registered F-AZXR, formerly ZK-TPK) was originally a Mk I. Currently at Hawker Restorations prior to going to Belgium

Stu: "I flew this one in in NZ and will do the test flying once she's ready".

Germany
HURRICANE Mk.IIB (Serial No. BW874), Registered as G-CBOE. Crashed on 15 Nov 1943. The wreck was recovered in the mid-70s, finally being restored to airworthiness in 2014 as a Mk II serial AG244. Now in Germany.

Stu: "I made her first post-restoration flight."

United States
HURRICANE Mk.XII 5667 (registered N2549)
SEA HURRICANE Mk XIIA BW881 Flies as 5429

Stu: "Sadly I have not flown either of these"

Hawker HURRICANE Mk.I - Z5140 / *image by: Robert Kysela*

United Kingdom
HURRICANE Mk.I P2902 (registered G-ROBT)

Stu: "I did her1st flight and have flown her many times".

HURRICANE Mk.I P3717 (registered G-HITT)

Stu: "Another 1st flight and I've flown her a lot".

HURRICANE Mk.I P2902 (registered G-ROBT)

Stu: "I did her1st flight and have flown her many times".

HURRICANE Mk.I P3717 (registered G-HITT)

Stu: "Another 1st flight and I've flown her a lot"

HURRICANE Mk.I R4118

Stu: "My favourite Hurricane. She's so original and being a Mk1, very responsive in pitch. I did her 2nd post-restoration flight and flew her a lot for Peter Vacher until James Brown bought her. Now James does most of the flying".

HURRICANE Mk.XII Z5140 (registered G-HURI)

Stu: "I flew her for for the Fighter Collection. She's now with Guy Black".

HURRICANE Mk.IIc LF363 – BBMF
HURRICANE Mk.IIc PZ865 – BBMF
both flown by RAF pilots only.

HURRICANE Mk.IIb BE505 (registered G-HHII – Now 'Pegs' two-seater

Stu: "I carried out her first flight as Hangar 11's Hurribomber and the 1st flight following conversion to 2-seats. I have also flown her from back seat. She ia also a favourite as it's great to share the experience with others".

HURRICANE Mk.I V7497 (registered G-HRLI)

Stu: "I did the1st flight on this one".

SEA HURRICANE Mk.Ib Z7015 (registered G-BKTH – Shuttleworth)

Stu: "She has a very aft C of G so is longitudinally unstable, sadly non-aerobatic and hard to fly smoothly in formation . That said Stu prefers the MkIs to the later Mark´s".

SEA HURRICANE Mk.X AE977 (registered G-CHTK) painted as 'P2921' / 'GZ-L (Warbird Experiences)

Stu: "I also did the 1st flight on this one".

Stuart Goldspink was interviewed by:

Bob Barton / CHK6 UK

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FOR TICKETS!

Dieser Bereich ist für Sie - unsere Leserinnen und Leser! Wir werden oft gefragt, mit welcher Kameraausrüstung und welchen Einstellungen wir arbeiten. Auch wenn es keine wirklichen Geheimnisse gibt, möchten wir in dieser Rubrik unsere Erfahrungen mit Ihnen teilen. In jeder Ausgabe werden wir Ihnen wertvolle Informationen zur Luftbildfotografie geben, vom absoluten Anfänger bis zum erfahrenen Profi.

... behind the image

von Robert Kysela

Der richtige Standpunkt

Vor einer Veranstaltung werde ich oft gefragt, wo ich mich hinstellen werde, um die besten Fotos zu bekommen. Die Antwort ist immer dieselbe: auf den besten Platz! Nur - wo ist der beste Platz? Um die richtige Antwort zu finden, sollte man sich zunächst ein paar Fragen stellen: Welche Aufnahmen/Perspektiven bevorzuge ich und wo liegen die Grenzen meiner Kamera oder besser meines Objektivs? Als nächstes sollte man sich die Windrichtung anschauen, um herauszufinden, in welche Richtung der Start erfolgen soll. Grundsätzlich ist das Tolle an einer Airshow, dass ein guter Fotograf an fast jedem Punkt entlang der Crowdline perfekte Fotos machen kann. Für echte Action-Aufnahmen muss das Flugzeug aber in der Luft sein oder zumindest gerade abheben. Deshalb suchen sie den Punkt, an dem die Flugzeuge abheben. Und genau da liegt der Haken. Eine F-16 mit vollem Nachbrenner ist schon nach etwas mehr als 300 Metern in der Luft, während ältere Maschinen wie eine F-4 PHANTOM II nach 300 Metern noch gemütlich dahin rollen. Der Fotograf muss sich also entscheiden, wo genau er sich auf der Crowdline positioniert, um mit seinem Objektiv die Aufnahmesituation auf dem jeweiligen Flugzeug zu erhalten.

Stehen sie auf der falschen Seite oder hat der Wind gedreht und die Startrichtung geändert, haben sie zumindest beim Start schlechte Karten. Dieses Problem können sie umgehen, wenn sie sich in die Mitte der Startbahn stellen (oft auf Höhe des Towers), dann ist es egal, ob das Flugzeug von links oder von rechts startet. Nun wollen sie aber nicht nur ein startendes Flugzeug fotografieren, sondern auch die Flugvorführung selbst ablichten. In dieser Richtung ist es inzwischen schwierig geworden, weil die Flugvorführungen immer weiter weg von den Zuschauern und in immer größerer Mindesthöhe stattfinden. Wenn ich zurückdenke, war Mitte der 90er Jahre ein 400 mm Objektiv mehr als ausreichend, heute ist eine Brennweite von 800 mm oft nicht mehr genug (die Fotos im Bericht über die Athens Flying Week wurden mit einem Nikkor AF-S 800 mm und einem 1,4x Telekonverter aufgenommen, was einer Brennweite von 1120 mm (!) entspricht).

Aber kommen wir noch einmal auf die Luftaufnahmen zurück. Auch hier kommt es darauf an, welche Art von Flugaufnahmen Sie bevorzugen. Wer dynamische Fotos haben möchte, sollte sich eher weit rechts oder weit links platzieren, da die Flugzeuge in der Regel am äußeren Rand beidrehen und so in einer dynamischeren Fluglage fotografiert werden können. Für das Crossing von Aerobatic-Teams ist wiederum die Mitte der richtige Platz. Auch Hubschrauber sollten eher im mittleren Bereich fotografiert werden, da sie nicht viel Airspace für ihre Vorführung benötigen und in der Regel fast immer im Show-Center ihre Vorführung zeigen.

Eine Sache muss noch berücksichtigt werden - die Sonne! Leider gibt es viele Flugplätze, die so ausgerichtet sind, dass ihnen die Sonne während eines Teils der Veranstaltung oder noch schlimmer während der gesamten Veranstaltung ins Gesicht scheint. Für den Fotografen ist das natürlich eine mittlere Katastrophe. Ich erinnere nur an die grandiose Veranstaltung zum 100-jährigen Bestehen der italienischen Luftwaffe in Pratica di Mare. Dort verläuft die Start-/Landebahn in Nord-Süd-Richtung und das Publikum war im Osten platziert, d.h. ab ca. 12:00 Uhr hatte man Gegenlicht. Das ist natürlich schwer auszugleichen. Eine Möglichkeit war, mich so weit wie möglich links/südlich zu positionieren, um die Sonne so lange es ging an der Seite zu haben und nicht direkt in die Sonne zu fotografieren. Das hat ganz gut funktioniert! Da ich an den anderen Tagen mir stets eine Position ausgesucht habe, an der die Verhältnisse etwas anders waren, habe ich in Summe doch meine Fotos von diesem Event erhalten. obwohl das Licht dort eine Herausforderung war!

SWEDISH AIR FORCE
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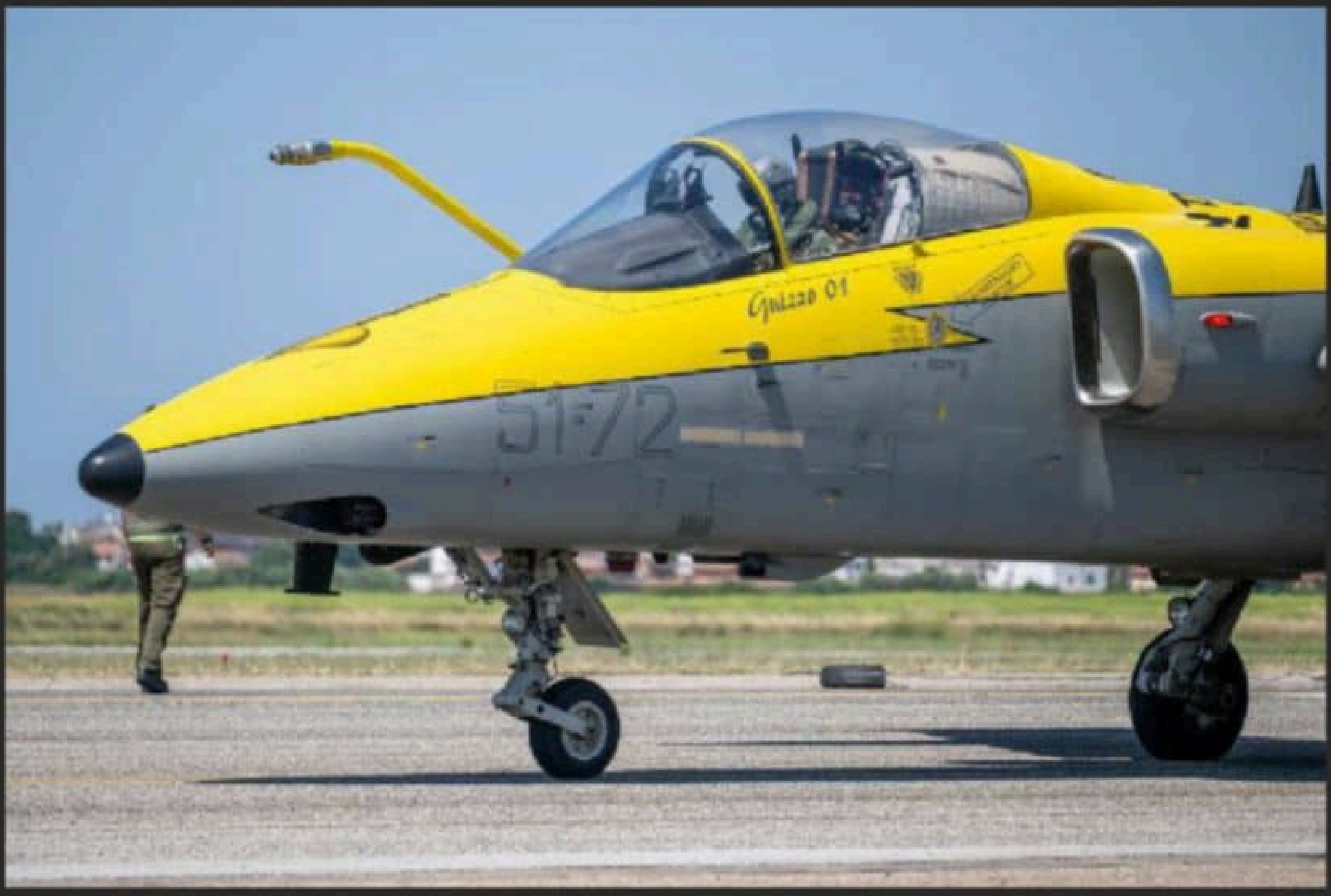
Airborne! Eine C-130J im Moment als sich das Bugrad von der Runway löst. Position: Mitte der Runway / Foto: Robert Kysela

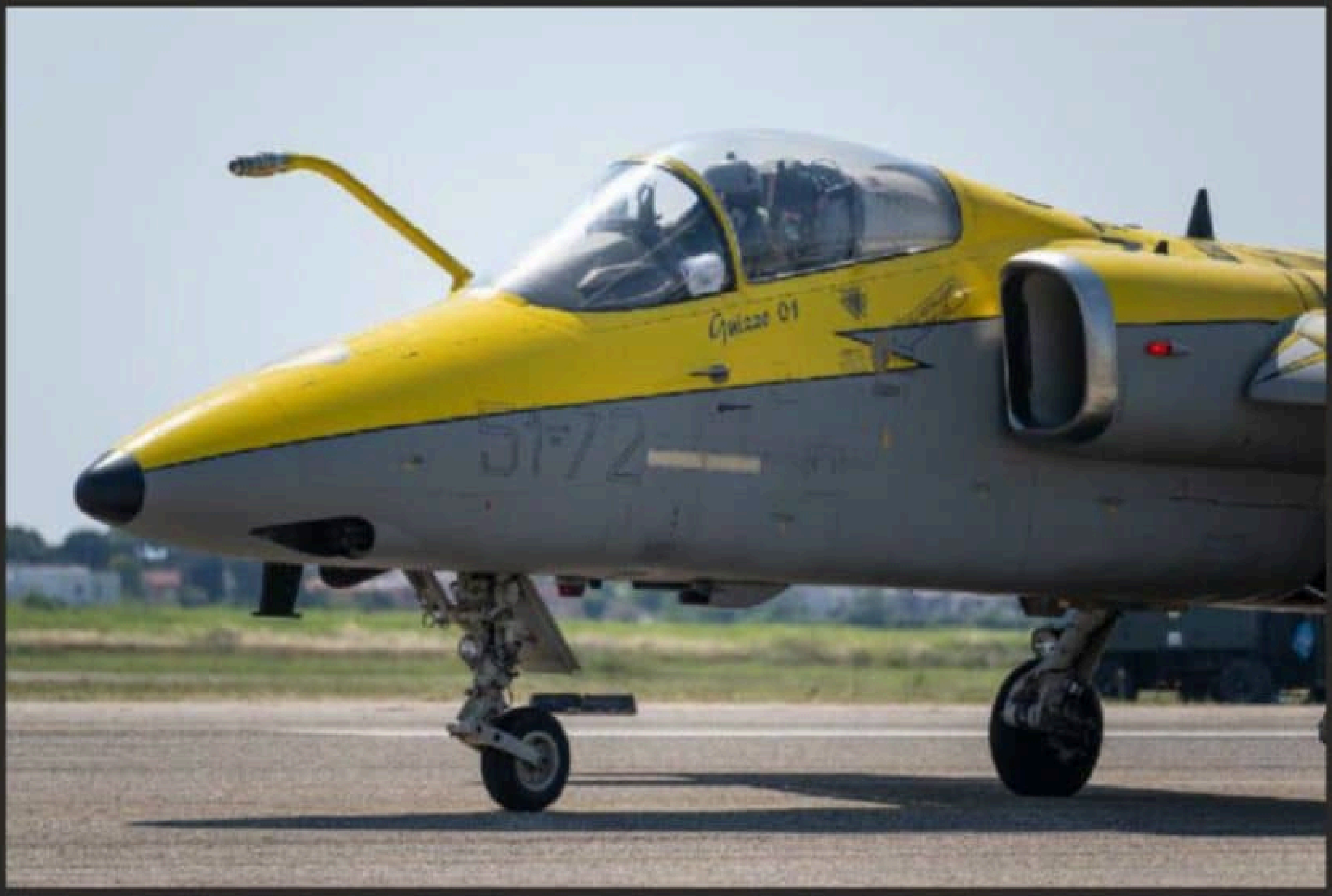
Wenn es auf der Zuschauerseite überhaupt keine Möglichkeit gibt, schöne Fotos zu machen, kann man es immer noch außerhalb des Flugplatzgeländes versuchen. Dies ist nicht immer und überall möglich, aber auf einigen Flugplätzen ist der beste Platz zum Fotografieren definitiv außerhalb des Flugplatzgeländes. So war der mit Abstand beste Spot beim Royal International Air Tattoo in Großbritannien jahrelang ein Bauernhof direkt gegenüber der großen Zuschauertribüne. Das Tolle daran war nicht nur, dass das Flugprogramm (teilweise) direkt über dem Farmgelände stattfand, sondern auch, dass man sich dort frei bewegen konnte und nicht auf einen einzigen Platz festgelegt war. So viel Glück hat man leider nicht überall (und im Fall von Fairford auch nicht mehr, da der Zugang zu dieser Farm nicht mehr erlaubt ist und von Sicherheitskräften bewacht wird). In Pratica di Mare gibt es zwar ein großes Feld gegenüber der Basis, aber das ist teilweise zu weit weg. So besteht dort nur die Möglichkeit, sich in den Anflugbereich zu stellen, was die Art der Fotos bzw. die Perspektive stark einschränkt. Für Landeaufnahmen ist das natürlich der beste Platz!

Eine Sache habe ich noch nicht erwähnt. Bei einer eintägigen Veranstaltung sollte man seinen Platz mit Bedacht wählen (es gibt nur eine Chance). Bei einer mehrtägigen Veranstaltung müssen sie unbedingt den Standort wechseln, auch wenn der vom ersten Tag sehr gut war. Nur so erhalten sie Fotos aus unterschiedlichen Perspektiven und damit mehr Abwechslung!

Robert Kysela



Position: Linke Seite; Uhrzeit: 11:24 CET / Foto: Robert Kysela



Gleiche Position; Uhrzeit: 15:38 CET / Foto: Robert Kysela

VORSCHAU

Ausgabe 2/2025

K. Atatürk
TOM

Foto: Robert Kysela

1. **Sanicole Airshow 2024**

2. **AeroIndia 2025**

3. **Turkish PHANTOMS 50th Anniversary**

4. **Sukhoi Su-27/30/34/35 Family / Part I**

5. **& more...**

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